THE IRON TRADE REVIEW

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BETTER SHOWING

THAN WAS EXPECTED MADE BY BLAST FURNACES IN JULY.

Strike of Structural Workers.—Steel Corporation Desires to Purchase Bessemer for September.—Large Sale of Southern Basic.

Our blast furnace statistics for July show a production of 1,719,728 tons, against 1,822,485 tons in June, a decrease of 5.6 percent. As the intense heat of July and the humidity of the atmosphere interfered to a considerable extent with the operation of many furnaces, this decrease in production is not large. While there has been an increase in stocks held by merchant furnaces, the reports indicate large sales have been made for future delivery. On the whole, the statistics reveal a more favorable condition than was expected.

Cause of the Strike.

The strike ordered by the International Association of Bridge and Structural Iron Workers against the American Bridge Co. will, according to the officers of the union, involve about 10,000 workingmen. Although the number of men who will go on strike Thursday is not as large as in many other strikes of recent years, the resulting delay in building operations will be very annoying, and many other employes in building trades will be indirectly affected. The trouble was caused at New Haven, Conn., by a local union ordering a strike against a sub-contractor because he employed non-union men. The American Bridge Co., although it employs union men, refused to demand that the sub-contractor do so. There is little doubt that the men will eventually be beaten. For a time, however, the completion of the American Bridge Co.'s contracts will probably be delayed, and the pressure for the delivery of structural shapes, which has been tremendous, may be somewhat relieved, to the benefit of other companies. Large premiums are now being paid, amounting in some cases in the East, to $15.00 per ton, for the delivery of structural material.

Corporation May Buy Iron.

The week has been very quiet in pig iron. The demand has been light, although we note the sale of 15,000 tons of basic by a Tennessee company, on the basis of $13.00, Birmingham. The pig iron market in all centers has been firm, but Southern sellers have some difficulty in maintaining the basis of $12.00 for No. 2 foundry, Birmingham. The United States Steel Corporation has signified its desire to confer with the Bessemer Association late this month in regard to the purchase of pig iron for September delivery. The fact that this conference is to be held will undoubtedly strengthen the market for Bessemer, although it is impossible to predict whether the views of the Corporation and those of the Association concerning price can be harmonized. It is hoped, however, that the Corporation will make a contract for a good-sized tonnage.

Rails Ordered for Next Year.

The Tennessee Coal, Iron & Railroad Co. has made a contract for 30,000 tons of open hearth rails for delivery in 1906—delivery to begin in April and to be made at 5,000 tons per month. There are now pending inquiries for 150,000 tons of rails for export and for domestic use. In some cases premiums have been offered for prompt delivery and declined, as the companies were not able to give delivery without delaying completion of contracts. The advance of $1.00 per ton in the price of light rails by the principal producer has been received without expression of disapproval in most places, although in some cases orders have gone to other companies. Large orders for cars are being placed; among those of the last few days being 3,000 steel underframed cars for the Herriman lines, 1,500 cars for the St. Louis & San Francisco and 500 steel coal cars for the Norfolk & Western. The demand for wire continues to be fair, and independent producers have reaffirmed prices. The demand for bar iron is stronger than for several months. The scrap market is showing increased firmness in nearly all markets.

IN NEW YORK

The Next National Foundrymen's Convention Will Meet in November.

(By Telephone.)

Detroit, Aug. 9.—The executive council of the National Foundrymen's Association met this week in this city. The gathering was favored with a large attendance of the members of the board and a very optimistic feeling regarding business conditions in their trade was prevalent. The labor situation, always an important topic in foundry circles, was reported as offering a very favorable aspect.

Plans were laid for the next national convention, and it will be held in New York city, November 15 and 16. The council will convene prior to the convention on the 13th and 14th, and on the 15th a banquet has been provided for in the program. The alumni will meet on the 14th.

Ore Hauling Record Broken.

(Special Telegram.)

Pittsburg, Pa., Aug. 9.—In ore traffic the Bessemer & Lake Erie road broke all records for a single month's shipment in the entire history of the road when in July 051,207 tons were carried from Conneaut to furnaces. A large amount of new equipment will bring the record for August above that of July.

THE WEEK IN IRON CENTERS.

PITTSBURG.

OFFICE OF *The Iron Trade Review*,
521 PARK BUILDING, August 7.

The demand for finished steel for practically all purposes continues in all branches, with the exception of sheets and tin plate and wire products. Steel bars are being bought freely and the indications are that there will be a decided advance before the end of the month. Structural material for prompt delivery cannot be obtained, and it is claimed the strike of the International Association of Bridge and Structural Iron Workers against the American Bridge Co. will in no way affect the output of material, as whatever steel would be required by this company and not needed for immediate requirements by the bridge company can readily be diverted into other channels without the slightest trouble.

The Carnegie Steel Co., if it had twice its present capacity could book orders for several months ahead. The pig iron market, which, after the spurt a few weeks ago quieted down, awakened again last week, and 10,000 tons of Gray Forge was sold at $14, furnace. Several furnaces which have been out of blast have not resumed as soon as anticipated, but with the present feeling prevailing, and from reports from the west of record crops the first or middle of September is looked forward to bring with it an unprecedented boom. The Bessemer Pig Iron Association is not quoting prices for last half delivery.

Pig Iron.—Buying took a little spurt in one or two places within the past week and one lot of 10,000 tons of Gray Forge was sold at $14, furnace, which is equal to $14.85, Pittsburg, for delivery during the last half. One thousand tons of Foundry was sold for $14.75, Pittsburg, delivery last half and for immediate shipment 2,500 tons of Bessemer was sold at $14.25, valley. One thousand tons of Foundry sold at $14.75 Pittsburg. The Bessemer Pig Iron Association is not quoting for last half delivery, in anticipation of better prices for the last quarter, there being but six weeks remaining in the third quarter. The feeling is strong and dealers are feeling optimistic. We revise quotations as follows:

Bessemer, Valley	$14.50
Bessemer, Pittsburg	$15.35 to 15.60
No. 1 Foundry	15.85 to 16.10
No. 2 Foundry	15.35
Gray Forge, Pittsburg	14.80
Basic, Valley	14.60 to 14.85
Basic, Pittsburg	15.10 to 15.35

Steel.—The demand for billets, sheet and tin bars continues to be extremely heavy. Bars, long lengths, are now quoted at $25 and cut bars at an advance of 50c. Bessemer billets are firm at $23, but open hearth billets are quoted at $24, with but little offered for sale. An advance is anticipated before the end of the month.

Ferro-Silicon.—The unusual sale of 200 tons of ferro-silicon, 50 percent, at $92.50 is reported, and 500 tons of 12 percent ferro-silicon at $27 to $27.50 for delivery during the remainder of the year.

Ferro-Manganese.—We note the sale of 600 tons foreign manganese, 80 percent, at slightly better than $49 for immediate delivery, and quote $49.50 for last half delivery. On account of the troubles in Russia, where these foreign products are mined, it is feared there will be a lessening in supply, and importers report low stocks now in this country.

Muck Bar.—While no sales have been reported upon which to base a price a quotation of $26.75, Youngstown, or $27.70, Pittsburg, is made.

Skelp.—The market continues to be quiet. Bessemer grooved is quoted at 1.50c and sheared at 1.55c. Grooved iron is quoted at 1.55c and sheared at 1.60c to 1.65c.

Rails and Track Material.—The demand for light rails continues and the advance of $1 per ton has been maintained. Mills on both light and heavy stock are running to capacity and additional heavy orders are anticipated from the railroads. The leading interest has not made quotations on rails for next year delivery. We quote:

Fifty lb. and over 500 tons, $28; car lots and less than 500 tons, $30; less than car lots, $32; light rails, 16 lb., $27 to $28; 20 lb., $26.50 to $27; 25 to 45 lbs., $25 to $26; angle bars for standard sections, 1.35c; spikes, 1.75c.

Plates.—The new mill of the LaBelle Iron Works has been in operation on single turn for ten days and the result has been highly satisfactory. It is expected to go on double turn about Sept. 1 and the capacity will then be 350 tons per day. Plate tonnage continues very heavy and the mills are experiencing difficulty in making deliveries. We quote:

Tank plates, ¼ in. thick, 6¼ in. to 14 in., inclusive, 1.50c f. o. b. mill Pittsburg; over 14 lb.: Flange and boiler steel, 10c; marine, A. B. M. A., and ordinary fire box, 20c; still bottom, 30c.; locomotive fire box, 50c; plates over 100 in. up to 110 in. in width, not less than 5c extra; plates 110 in. to 115 in. wide, not less than 10c extra; 115 to 120 in., 15c extra; plates 120 in. to 125 in. wide, not less than 25c extra; plates 125 in. to 130 in., not less than 50c extra; plates 130 in. wide, not less than $1 extra; plates 3-16 in. thick, 10c extra; gauges 7 and 8, 15c extra; No. 9, 25c extra. Five cents extra for less than carloads. Terms net cash in 30 days, and for all points of delivery in the United States except Pacific Coast.

Bars.—The tendency of producers to book for only three months' delivery has been continued among some and several mills are booked for considerable tonnage. Bar iron continues at 1.60c to 1.65c, Pittsburg. We quote:

Bar iron 1.60c to 1.65c Pittsburg; hoops 1.65c, and bands, 1.50c, both taking hoops and band extras respectively. Bessemer steel bars, 1.50c.; open-hearth steel bars, 1.50c.; plow and cultivator, 1.50c, net; channels, angles, zees and tees, under 3 in., 1.65c. The following differentials are maintained on steel: Less than 200 lb. of a size and not less than 1,000 lb., 10 cents advance; less than 1,000 lb. of a size, 30 cents advance.

Structural Material.—The strike of the bridge and structural iron workers against the American Bridge Co., in all parts of the country, is declared when the company is carrying on its books the largest tonnage of unfilled orders in its history. At any other time it would undoubtedly have had its effect on the production of structural material, but it is stated on good authority that the output of the mills can readily be diverted into other channels without serious difficulty. The unfilled orders of the American Bridge Co. amount to over half a million tons. The demand for structural material continues without a let-up and the leading interest, if it had the capacity, could take twice the work it has on the books, which are now carrying more than at any previous time. The larger shapes are particularly in demand, while in plates there is no particular weakening. Sheared plates are steady and the demand for universal plates is good.

We quote as follows: Beams and channels up to 15 in., 1.60c; over 15 in., 1.70c; zees, 1.60c; tees, 1.65c; angles, from 3 to 6 in., inclusive, 1.60c; universal and sheared plates, 6¼ to 14 in., inclusive, 1.50c; over 14 in., 1.60c, base.

Sheets.—But little has been done in this market and in-

dependent mills report the consumer pretty well filled up on both black and galvanized, although the inquiry seems to be a trifle better. We quote:

No. 30, 2.70c to 2.75c; No. 29, 2.60c to 2.65c; No. 28, 2.30c to 2.35c; No. 27, 2.20c to 2.25c; Nos. 25-26, 2.20c; Nos. 23-24, 2.15c; Nos. 18-20, 2.10c; No. 16, 2.10c; Nos. 12-14, 2.05c; No. 9, 2c; No. 8, 1.95c; Galvanized No. 30, 4.30c; No. 29, 3.80c; No. 28, 3.40c; No. 27, 3.20c; Nos. 25-26, 3c; Nos. 23-24, 2.80c; Nos. 18-20, 2.65c; No. 16, 2.50c.

Wire and Wire Nails.—Many of the mills are getting ready to resume operations for the fall demand, although as yet the demand continues light notwithstanding the depleted stocks which have been reported. We quote:

We quote: Wire nails, jobbers' carload lots, $1.80; retailers' carload lots, $1.85, and less than carloads, $1.95; painted barb wire, $1.95 for jobbers in carloads; retailers' carloads, $2, and less than carloads, $2.10, with 30c for galvanizing. Annealed smooth fence wire is held at $1.65, with the usual differentials to retailers for carloads and less than carloads. Quotations are all f. o. b. Pittsburg, 60 days, with 2 percent discount for cash in ten days. Iron and steel cut nails, $1.70 to $1.75.

Merchant Steel.—Implement makers are buying freely and the tendency is for higher prices, although to this time they have remained about stationary. Producers are comfortably filled. We quote:

We quote: Cold rolled and ground shafting, 50 percent off in carload lots, and 45 off in less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flat, 1.50c to 1.55c; smooth finished machinery steel, 1.70c to 1.75c; toe calk, 2c to 2.05c.

Pipes and Tubes.—The Youngstown mill of the National Tube Co., which has been idle since the July shut-down, will resume next Monday. There is not much doing in oil country pipe, as but little drilling is being done and not much is expected before fall. Several gas pipe lines are being talked of, but nothing definite has been done in this connection, although developments are expected within a short time. Boiler tubing is in strong demand and producers are unable to meet the demands of customers. The National Tube Co. could operate two or three months on this without another order. Pittsburg basing discounts are as follows:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ inch	67	51	65	49
⅜ to 6 inches	75	65	73½	63½
⅜ and ½ inch	71	59	69	57
7 to 12 inches	70	55	68½	53
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch	60	48	58	46
½ to 4 inches	67	55	65	53
4½ to 8 inches	63	51	61	49
Double extra strong plain ends, ½ to 8 inches	56	45	54	43

MERCHANT BOILER TUBES, CARLOADS, 22 FEET AND UNDER.

	Steel.	Iron.
1 to 1½ inches	44	41
1¾ to 2¼ inches	56	41
2½ inches	58	46
2¾ to 5 inches	64	53
6 to 13 inches	56	41

Less than carloads 2 points less.

Old Material.—Principal dealers report the business being done mostly between dealers as a speculation or the buying by those who were caught short. There is but little business being done with the consumer. We quote, gross tons, as follows:

Heavy melting stock, $14.75 to $15; low phosphorus material, $17.50 to $18.00; rerolling rails, $14.25 to $14.50; cast scrap, $13.00 to $13.25; borings, $8.75 to 9.00; No. 1 Wrought, $14.50 to $14.75.

Coke.—Because many furnaces which anticipated resuming operations by this time have failed to do so, the activity expected did not develop and prices remain about the same and furnace coke for prompt delivery is quoted from $1.75 to $1.90, according to quality, and foundry coke from $2.25 to $2.40. The coke production from the Connellsville is again increasing, the total estimated output for the week ending July 29 being 257,295 tons for the upper region, against 244,910 for the week ending July 22. The lower region produced 80,314 tons.

CHICAGO.

Demand for Pig Iron is Light—Activity in Finished Lines.

OFFICE OF *The Iron Trade Review*,
1164 MONADNOCK BLOCK, August 7.

The placidity of the local market has not been marred by any untoward event in the past week. The demand for pig iron has fallen to slender proportions, and there is every indication that buying will be light for the balance of the month. No change is noted in prices, which continue strong at $15.65 and $16.50 Chicago for Southern and Northern No. 2 respectively. Interest centers principally in the activity in intermediate and finished iron and steel products. The deliveries of plates and structural shapes are so belated that jobbers and consumers in this district are much distressed over the outlook and a number of contractors have declined to figure on new jobs because of the fear that the material will not be forthcoming when wanted. It is impossible to get any guarantee of shipment within three to four months from any producer of these products, and even this period of waiting is fraught with much uncertainty. The intense activity in all consuming lines leaves little hope that there will be any relief from this condition for the remainder of the year. The building permits taken out during July in twenty of the leading cities of the country show an increase of 55 percent over the corresponding month of last year, according to the Construction News, or an increase of 1,174 buildings, representing an expenditure of over $12,000,000. The demand for cars as shown by orders placed last week, shows no diminution. Since our last report the Harriman lines have ordered 3,000 steel underframe cars; the Norfolk & Western, 500 steel coal cars, and the St. Louis and San Francisco 1,500 cars, beside a number of smaller orders from other roads. This activity in railroad construction has strengthened bar iron, which is now quoted at 1.60c Chicago. The specifications for steel bars are heavy, all the western mills being filled up for months ahead. Billets and rods are extremely scarce and fancy premiums are paid for almost any delivery. Demand for wire products is good and prices are strong, the independent makers having reaffirmed the old quotations at a meeting which they held in Chicago, Thursday, Aug. 3. There has been further buying of rails for the Harriman lines for late delivery. Scrap continues to move upward, though the improvement is one of sentiment rather than as a result of increased demand.

Pig Iron.—The labor question in the South, as well as the congestion of traffic and scarcity of cars on all the Southern roads are seriously affecting the delivery of iron to points in this district. Complaints on this score are numerous, and some fears are expressed that there will be a repetition this winter of the conditions that made 1902 a memorable year. Should a car or iron famine of such proportions be felt this year, the results are liable to be more disastrous, not so much from the standpoint of high prices as from the inability to get relief from any of the local furnaces. All the merchant stacks in this district have their output sold months ahead and have little if any iron to offer for emergency cases. The Illinois Steel Co. is out of the question, for it is consuming in its own mills the entire output of all its furnaces, all

of which with the exception of three at South Chicago, are working on Bessemer. Trading in the week under review was light, being limited to the usual routine of small orders from belated buyers and those who need small tonnages of various grades for filling in purposes. Prices are strong nevertheless at $12.00 Birmingham for Southern No. 2, and $16.50 Chicago for local No. 2. There is some talk that Southern irons may drop 25 cents a ton before the month is ended if the dullness continues, but there is no evidence of this weakness as yet. We quote as follows:

Lake Superior charcoal	$17.50 to 17.75
Northern Foundry No. 1	17.00 to 17.25
Northern Foundry No. 2	16.50 to 16.75
Northern Foundry No. 3	16.00 to 16.25
Northern Scotch Foundry	17.00 to 17.25
Ohio Strong Softeners No. 1	17.30
Ohio Strong Softeners No. 2	16.80
Southern Foundry No. 1	16.15
Southern Foundry No. 2	15.65
Southern Foundry No. 3	15.15
Southern Foundry No. 4	14.90
Southern No. 1 Soft	16.15
Southern No. 2 Soft	15.65
Southern Gray Forge	14.65
Southern Mottled	14.40
Southern Silveries (4 percent to 6 percent Silicon)	16.65 to 17.65
Jackson Co. Silveries (8 percent to 10 percent Silveries)	19.80 to 20.30
Alabama and Georgia Car Wheel	20.15
Malleable Bessemer	16.50 to 16.75
Basic Iron	15.65 to 16.15

Billets.—Only an occasional lot of forging billets is sold in this market, and for these local mills have no trouble in securing $32.00. Wire rods are also firm and bring top notch prices, the nominal quotation being $32.00 Pittsburg.

Bars.—A better demand exists for bar iron than in several months. The activity of railroads and car builders is largely responsible for the improvement, these interests having been buying freely of late for the large car orders that have been placed within the last week or so. Iron is now generally held at 1.60c Chicago, though possibly a desirable order or customer might secure a slightly lower price. Interest in steel centers entirely in the week's specifications. These are very heavy and continue to tax the capacity of mills.

Our quotations are as follows: On carload lots, mill shipments, Chicago delivery: Bessemer and open-hearth bars and bands, 1.66½c base, half extras; soft steel angles, less than 3 x 3, 1.76½c; hoops, 1.81½c base, full extras. Store trade is active and prices are firm. We quote bar iron, 1.90c base, full extras; soft steel bars and bands, 1.85c to 1.95c base, full extras; soft steel angles, channels and tees, under 3 in., 1.95c to 2.05c; hoops, 2.20c base, full extras.

Sheets.—Trading is of good proportions, consumers buying liberally for future wants. For some reason, however, prices do not strengthen, and every inquiry of any size brings out a range of prices that surprises the buyer. Galvanized sheets are lower, and we have reduced our mill prices $1.00 a ton. We quote carload lots, mill shipments, Chicago delivery, as follows: Blue annealed sheets, Nos. 9 and 10, 1.81½c; Nos. 11 and 12, 1.86½c; Nos. 13 and 14, 1.91½c; Nos. 15 and 16, 2.01½c. On box annealed, one pass, cold rolled, we quote Nos. 18 and 20, 2.21½c; Nos. 22 and 24, 2.26½c; Nos. 25 and 26, 2.31½c; No. 27, 2.36½c; No. 28, 2.46½c; No. 29, 2.56½c; No. 30, 2.66½c. We quote on lots from warehouse stocks as follows: No. 10, 2.10c to 2.15c; No. 12, 2.15c to 2.20c; No. 14, 2.20c to 2.25c; No. 16, 2.30c to 2.35c; Nos. 18 and 20, 2.50c to 2.55c; Nos. 22 and 24, 2.55c to 2.60c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.85c; No. 28, 2.85c to 2.95c; No. 29, 3c to 3.05c. Galvanized sheets, mill shipments, Chicago delivery, are quoted as follows: Nos. 12 and 14, 2.41½c; No. 16, 2.56½c; Nos. 18 and 20, 2.71½c; Nos. 22 and 24, 2.86½c; No. 26, 3.06½c; No. 27, 3.26½c; No. 28, 3.46½c; No. 29, 3.71½c. Jobbers' prices on lots from store are as follows: Nos. 10 to 14, inclusive, 3.10c; No. 16, 3c; Nos. 18 and 20, 3.10c; Nos. 22 and 24, 3.25c; No. 26, 3.50c; No. 27, 3.70c; No. 28, 3.95c; No. 29, 4.40c; No. 30, 4.85c.

Structural Material.—There is little news of importance to chronicle this week. Mills are making no headway in the matter of delayed shipments, and much uneasiness is felt among local jobbers and consumers. Building in this city is very active, 768 permits having been taken out last month. According to the Construction News the building enterprises undertaken in July show an increase of 55 percent over the corresponding month of last year. Prices are without change, but are exceptionally strong.

We quote, Chicago delivery, as follows: Beams and channels, 3 to 15 in., inclusive, 1.76½c; angles, 3 to 6 in., ¼ in. and heavier, 1.76½c; angles larger than 6 in., in one or both legs, 1.86½c; beams larger than 15 in., 1.86½c; zees, 3 in. and over, 1.76½c; tees, 3 in. and over, 1.86½c; with the usual extras for cutting to exact lengths, punching, coping, bending or other shop work. We quote prices from store as follows: 2.10c to 2.25c for angles, beams and channels, base sizes, with 2.20c to 2.30c for 18, 20 and 24-in. beams; tees and zees, 2.15c to 2.25c. These prices are for either random lengths or cut to specifications in excess of 5 ft.

Merchant Pipe.—Demand shows an improvement over the tonnage sold in the weeks immediately previous, and mills look for a continuous betterment from now on. Prices are firm, though reports of some cutting being done by independent makers are heard from time to time. We quote random lengths, f. o. b. Chicago, as follows:

MERCHANT PIPE.

	Steel. Black. Percent.	Steel. Galv. Percent.	Iron. Black. Percent.	Iron. Galv. Percent.
⅛ to ¼ inches	65.85	49.85	63.85	47.85
⅜ to ½ inches	69.85	57.85	67.85	55.85
¾ to 6 inches	73.85	63.85	72.35	62.35
7 to 12 inches	68.85	53.85	67.35	51.85

PLUGGED AND REAMED.

	Steel.		Iron.	
1 to 4 inches	71.35	61.35	69.85	59.85

EXTRA STRONG PIPE.

⅛ to ⅜ inches	58.85	46.85	56.85	44.85
½ to 4 inches	65.85	53.85	63.85	51.85
4½ to 8 inches	61.85	49.85	59.85	47.85

DOUBLE EXTRA STRONG PIPE.

½ to 8 inches	54.85	43.85	52.85	41.85

Boiler Tubes.—Local jobbers report that a brisk movement from warehouse stocks continues to be felt. All are hopeful over the future, every branch of the consuming trade reporting prosperous conditions. Carload lots, Chicago delivery, are without change, as follows:

BOILER TUBES.

	Steel.	Iron.	Seamless.
1 to 1½ inches	40.35	37.35	53.00
1¾ to 2¼ inches	54.35	39.35	40.00
2½ inches	56.35	44.35	43.00
2¾ to 5 inches	62.35	51.35	
		Up to 4½ inches	50.50
6 to 13 inches	52.35	37.35	

Less than carload lots from store, as follows:

	Steel.	Iron.	Seamless Steel.
1 to 1½ inches, inclusive	40	35	42½
1¾ to 2¼ inches, inclusive	50	35	35
2½ inches, inclusive	52½	35	30
2¾ to 5 inches, inclusive	60	47½	42½

Plates.—Jobbers and independent makers of plates are profiting by the congested condition of the mills of the leading producer. The former interests are the only concerns that can make deliveries within a reasonable time, though this is becoming more difficult each week.

We quote carload lots, mill shipments, Chicago delivery, as follows: Tank steel, ¼ in. and heavier, 6⅛ in. to 100 in., 1.76½c base; flange steel, 1.86½c base; marine steel, 1.96½c base, all full extras. Plates, 3-16 in. thick, $2 extras; gauges 7 to 8, $3 extra; No. 9, $5 extra. Less than carload lots, $5 extra. Store quotations are as follows:

Tank steel, ¼ in. and heavier, up to and including 72 in. wide, 2c; over 72 in. wide up to 100 in., 2.10c; over 100 in. wide, usual mill extras, 3-16 in. up to but not including 72 in. wide, 2.10c; 3-16 in., 72 in. wide, 2.35c; flange steel, 25c extra; heads, 25c extra.

Rails and Track Supplies.—The Harriman lines were buyers in this market for heavy rails for late delivery. With the usual routine of orders, the week's tonnage is of good proportions. Light rails are in brisk demand and prices stronger. The demand for track supplies is unprecedented, far exceeding the output of western mills.

We quote heavy sections, in 500-ton lots and over, f. o. b. mill, $28; less than 500 tons to carload lots, $30; less than carload lots, $32. Light rails are as follows: 12-lb. sections, $27; 16-lb., $26; 20 and 25-lb., $25; 30, 35, 40 and 45-lb. sections, $24, all f. o. b. Milwaukee mill. Track supplies, f. o. b. Joliet mill, angle bars, 1.40c to 1.50c; spikes, first quality, 1.75c to 1.80c; track bolts, 3¼ x ¾, with square nuts, 2.40c to 2.50c per lb., with hexagon nuts, 2.55c to 2.65c.

Merchant Steel.—There is little interest shown in new business. Consumers are bending their efforts to get the material under contract delivered, mills having been very delinquent in this respect for several weeks. Specifications are heavy.

Prices are without change and we quote carload lots, mill shipments, Chicago delivery as follows: Spring steel, 2.10c; sleigh shoe, flat sizes, 1.71½c; concave and convex, 1.86½c; cutter shoe, 2.35c; smooth finish machinery steel, 1.91½c; smooth finished tire, 1.86c; plow steel, 2.20c and upward, according to quality; toe calk steel, 2.21½c. Cold rolled shafting, 50 percent off in carload lots and 45 percent in less than carload lots. Crucible tool steel, 6½c to 8c; special grades of tool steel, 13c and upwards.

Cast Iron Pipe.—No municipal lettings of any importance have been effected in the week under review. The regular trade, however, is of good volume. Prices are strong but without change. We quote carload lots, Chicago delivery, as follows: 4-in., $29.00; 6-in., 8-in. and 10-in., $28.00; 12-in. and larger, $27.00; gas pipe, $1.00 a ton higher.

Wire Products.—At an informal meeting of the independent manufacturers of wire nails, held in this city, Thursday, Aug. 3, the price of that product, viz., $1.80 f. o. b. Pittsburg to jobbers, was reaffirmed. The fall demand is opening up well, and mills anticipate a brisk trade.

We quote carload lots as follows: Wire nails, $1.95; painted barb wire, $2.10; galvanized barb wire, $2.40; smooth annealed wire, $1.80; smooth galvanized wire, $2.10; polished staples, $2.05; galvanized staples, $2.35. Less than carload lots to jobbers are 5 cents higher than above prices. The retail trade is quoted 5 cents extra over the foregoing on carload lots, and 10 cents extra on less than carload lots. Bale ties are unchanged at 82½ and 5 percent to dealers on mixed car lots and 85 percent discount f. o. b. Waukegan, Ill., on straight carload lots.

Coke.—There has been little trading in the week under review, coke sharing in the dullness through which pig iron is passing. Prices are strong, Connellsville furnace coke being quoted $2 to 2.10 ovens, and Connellsville, 72-hour foundry coke, $2.40 to $2.50 ovens. Wise county, W. Va., fuels are quoted the same as Connellsville brands.

Old Material.—The situation is not changed from what it was a week or two weeks ago. As a result of the improved sentiment in the general iron and steel trade, prices of scrap have strengthened. Dealers are doing considerable buying and selling among themselves in the hope of manipulating values upward, but there is no consumptive demand worthy the name. We have revised several of our prices to meet the slightly changed conditions and quote as follows:

Old steel rails (4 feet and over)	$14.00 to 14.50
Old steel rails (less than 4 feet)	13.50 to 14.00
Old iron rails	18.50 to 19.00
Relaying rails, subject to inspection	23.00 to 24.00
Heavy melting steel	13.00 to 13.50
Mixed country steel	11.50 to 12.00
We quote as follows net tons:	
No. 1 R. R. wrought	14.75 to 15.00
No. 2 R. R. wrought	13.75 to 14.00
Shafting	15.00 to 15.50
Dealers' forge, No. 1	11.50 to 12.00
Wrought pipe and flues	11.00 to 11.50
No. 1 cast, 150 lb. and less	13.50 to 14.00
No. 1 mill	9.00 to 9.50
No. 1 Busheling	10.00 to 10.50
No. 2 Busheling	9.00 to 9.50
Country sheet	7.50 to 8.00
No. 1 boilers, cut	10.00 to 10.50
Boiler punchings	13.50 to 14.00
Iron car axles	21.00 to 21.50
Steel car axles	16.00 to 16.50
Iron axle turnings	10.50 to 10.75
Cast borings	8.00 to 8.50
Mixed borings, etc	8.00 to 8.50
Machine shop turnings	10.00 to 10.25
Railroad malleable	12.50 to 13.00
Agricultural malleable	12.00 to 12.50
Stove plate and light cast scrap	10.00 to 10.50
Old iron splice bars	16.50 to 17.00

The Independent Pneumatic Tool Co., of Chicago, manufacturer of "Thor" pneumatic tools, has moved into its new offices, 1256 First National Bank building. The company reports rapid progress in the installation of its tools in various plants, having received a number of attractive orders from railroads, ship yards and general manufacturers.

CLEVELAND.

Bessemer Pig Will Probably Be Purchased By United States Steel Corporation.

OFFICE OF *The Iron Trade Review*,
BROWNING BUILDING, August 7.

Iron Ore.—As predicted in these columns last week, a new record for ore shipments was made in July. The total was 5,224,620, against the previous high record of June, which was 4,999,450 tons. The shipments by ports for July and for the season to Aug. 1 were as follows:

	July 1904	July 1905
Escanaba	671,496	784,242
Marquette	319,558	442,593
Ashland	376,965	524,915
Superior	756,268	832,626
Duluth	923,811	1,408,917
Two Harbors	847,737	1,231,327
	3,895,835	5,224,620
1905 increase		1,328,785
	To Aug. 1 1904	To Aug. 1 1905
Escanaba	986,552	2,521,613
Gladstone	480	
Marquette	451,838	1,460,526
Ashland	578,926	1,647,167
Superior	1,109,199	2,467,029
Duluth	1,283,829	4,155,935
Two Harbors	1,193,588	3,786,404
	5,604,412	16,038,674
1905 increase		10,434,262

From the 1st of August to the close of the season in 1904 the fleet moved a little over 15,000,000 tons and if the movement for the remainder of the season is no heavier than it was for the same period last year shipments for 1905 will reach 31,000,000 tons. More ore was moved last month than there was in the entire season of 1888, when the shipments were 5,063,877 tons, and that is only seventeen years ago.

Pig Iron.—The United States Steel Corporation has expressed its desire to confer with the Bessemer Pig Iron Association the latter part of this month concerning the purchase of Bessemer pig for September delivery. It is, of course, impossible to predict whether the views of the corporation and the association will harmonize, but

the mere fact that a conference is to be held will strengthen the market when it becomes generally known, as it shows the need of the corporation for iron.

The market this week has been quiet, but firm, and the quotation $14.50 for No. 2 foundry, Valley, is pretty well established. Sales are being made steadily, but for rather small tonnages. We quote f. o. b. Cleveland as follows:

Bessemer	$15.35 to 15.60
No. 1 Foundry	15.75 to 15.50
No. 2 Foundry	15.00 to 15.25
No. 3 Foundry	14.75 to 15.00
No. 2 Southern	15.60 to 15.85
Gray Forge	14.25 to 14.50
Gray Forge, Southern	14.25 to 14.75
Lake Superior charcoal	16.25 to 16.50

Finished Material.—The strike of the structural workers against the American Bridge Co. is not expected to have much effect in this city, as work on only a few buildings will be delayed. If the demand for shapes on the part of that company is decreased, other concerns which have been unable to get orders filled may obtain more prompt delivery. The tonnage on the books of the principal manufacturers of structural material is immense.

Among the sales of the past few days were 10,000 tons of bars, bands and hoops and 12,000 tons of shapes and plates. An inquiry for 4,000 tons of standard sections is pending. The advance in price of light rails has been received without expressions of disapproval. Bar iron is in good demand at 1.55c to 1.60c at the mill. Sheets are slightly stronger on account of the heavy demand for steel.

Old Material.—The improvement of last week is well sustained and prices are firm, but show little change, except that iron rails have advanced about $1. We quote for Cleveland delivery as follows:

Old iron rails	$20.50 to 21.50
Old steel rails (over 6 feet)	15.00 to 16.00
Old steel rails (under 6 feet)	15.00 to 16.00
Old car wheels	15.00 to 15.50
Steel boiler plate	10.50 to 11.00
Steel axles	16.50 to 17.50
Malleable iron (railroad)	14.00 to 15.00
Malleable iron (agricultural)	13.00 to 13.50
Heavy steel	15.00 to 15.50

We quote as follows, net tons:

No. 1 R. R. wrought	14.00 to 15.00
No 1 busheling	12.50 to 13.50
No. 1 machine cast	12.50 to 13.00
Iron axles	19.00 to 20.00
Axle turnings	10.00 to 11.00
Wrought turnings (free from cast)	9.00 to 10.00
Grate bars	7.50 to 8.50
Pipes and flues	10.00 to 11.00
Tank iron	8.50 to 9.50
Hoop and band iron	7.00 to 8.00
Sheet iron	6.00 to 7.00
Wrought drillings	9.50 to 10.50
Stove plate	9.50 to 10.00
Cast borings	7.50 to 8.50

CINCINNATI.

Furnace Interests Maintaining Prices in a Quiet Market.

Pig Iron.—The sales of Southern iron have been small the past week and the situation has developed into the usual quietude following a heavy buying movement. Prices remain unchanged and furnace interests are maintaining their quotations quite steadily. On Southern pig iron $11.75 to $12.00 for No. 2 Foundry Birmingham fairly represents the market. A few favorably located furnaces sold some irons on the basis of $11.50, but we hear of this quotation less frequently than a week ago, and some scattered fairly good-sized orders on the basis of $11.75 Birmingham indicates that this price is practically the market. Strictly Birmingham irons are still held at $12.00 for No. 2 at furnace, but there have been no important transactions reported on that basis. The Southern charcoal iron market is in a somewhat unsettled condition and we hear of sales at $15.00 Birmingham, and it is intimated that in the recent past as low as $14.50 has been done. Some Southern charcoal irons are held on a much higher basis and quotations range from $15.00 to $16.00 at furnace. Jackson County 8 percent silvery is still steady at $17.00 furnace. Gray forge for prompt shipment is somewhat steadier, but $10.25 Birmingham can be done for prompt shipment, although furnace quotations as a rule range from $10.50 to $10.75. In Northern iron the market is steady and $14.00 for No. 2 Foundry at furnace is the minimum in Southern Ohio. Consumers are generally taking iron readily on their contracts and but few requests are being made to hold up shipments. While inquiries are light, the correspondence in the offices of the sales agencies indicates that there are some consumers who are willing to figure on their requirements for the last quarter of the year and the first quarter of 1906.

These inquiries, however, are productive of but little results. The most of the business placed this week was with Northern furnaces. The trade generally is looking for a continuance of present conditions for the rest of the summer period, as buyers appear to be well covered for the next three months and the furnaces have a very comfortable tonnage on their order books for the same period. It seems reasonable therefore to look for a period of waiting. We quote f. o. b. Cincinnati:

Southern Foundry No. 1	$15.00 to 15.25
Southern Foundry No. 2	14.50 to 14.75
Southern Foundry No. 3	14.00 to 14.25
Southern Foundry No. 4	13.75 to 14.00
Southern Foundry No. 1, soft	15.00 to 15.25
Southern Foundry No. 2, soft	14.50 to 14.75
Gray Forge	13.00 to 13.75
Northern Foundry No. 1	15.65 to 15.90
Northern Foundry No. 2	15.15 to 15.40
Northern Foundry, No. 3	14.65 to 14.90
Jackson County Silvery, 8 percent	18.15
Southern Charcoal	17.75 to 18.75

Finished Material.—The demand for plates and structural shapes continues active and the market firm. The demand for sheets is improving. Bar iron is stronger, and last week's inside quotation of 1.60c is no longer obtainable. Bar iron is quoted at 1.65c; steel bars at 1.63c, half extras, with dealers quoting 1.85c for iron and steel out of store. Galvanized sheets at 75 and 7½ percent off. We quote black sheets, No. 27 at 2.40c in car lots of 500 bundles. Black sheets out of store are selling as follows: No. 28, 2.70c; No. 27, 2.60c; No. 16, 2.20c; No. 14, 2.10c; No. 12, 2.05c; No. 10, 2c. Tank plates are firm and sell out of store at 2c for ¼ in. and 2.16c for 3-16, No. 8 and No. 10. Beams and channels are quoted at 2c from stock and angles at 2c to 2.05c. for base sizes.

In merchant pipe the demand is light and prices are irregular, although there is no change in the quotation schedule. We quote f. o. b. Cincinnati:

MERCHANT PIPE.

(Basing Discounts.)

	Steel Pipe. Black.	Steel Pipe. Galv.	Guaranteed Wrought Iron Pipe. Black.	Guaranteed Wrought Iron Pipe. Galv.
	Percent.	Percent.	Percent.	Percent.
⅛ and ¼ inches	65.35	49.35	63.35	47.35
⅜ and ½ inches	69.35	57.25	67.35	55.35
¾ to 6 inches	73.35	63.35	75.85	61.85
7 to 12 inches	68.35	53.35	66.85	51.35

Old Material.—The market is steady and fairly active with prices fairly well maintained. We quote f. o. b. Cincinnati:

Old No. 1 railroad wrought, net tons	$14.00 to 15.00
Cast machine and foundry, net tons	12.00 to 13.00
Old iron rails, gross tons	18.50 to 19.00
Old steel rails, gross tons	14.00 to 14.50
Old short lengths, gross tons	13.50 to 14.00
Old iron axles, net tons	20.00 to 21.00
Stove plate, net tons	8.50 to 9.00
Wrought turnings, net tons	9.00 to 10.00
Cast borings, net tons	7.50 to 8.00
Car wheels, net tons	13.50 to 14.00

Coke.—The market is active with a good demand and prices well maintained. Current quotations for the various important producing districts are as follows:

Wise County, Va. Furnace Coke prompt shipment	$2.00 per ton
Wise County, Va. Foundry Coke prompt shipment	2.25 per ton
Pocahontas Furnace Coke on contracts	1.85 to 2.00 per ton
Pocahontas Foundry Coke on contracts	2.00 to 2.25 per ton
Connellsville Furnace Coke on contracts	1.75 to 2.00 per ton
Connellsville Foundry Coke on contracts	2.25 to 2.50 per ton

Wise County, Va., Coke on Furnace contracts is sold mainly on a sliding scale basis for pig iron prices.
Connellsville Coke inside prices apply to "main line" ovens and not to strictly Connellsville Coke.

PHILADELPHIA.

Dull in Buying of Pig Iron in Which Interest Now Centers.

PHILADELPHIA, Aug., 8.—With both the finished and the old material markets showing a steadily improving tendency, and with a busy future apparently assured them, interest centers largely in the pig iron situation. No unfavorable features have appeared in this, but there is a very perceptible lull in the buying activity, following the spurt of a fortnight ago. A fair volume of orders, mostly for comparatively small amounts and prompt shipments, is being placed, but many large buyers have resumed their old waiting attitude, keeping an alert eye for any signs of weakness. So far none have appeared, but it may be that the statistics for July will show a slight increase in the accumulated stocks. Even if they do the matter is hardly likely to seriously influence furnacemen, who, realizing the activity of the steel trade generally and the scarcity of supplies among many consumers, are not disposed to make any great concessions in prices. The expectation is rather that prices will in all probability be marked up somewhat before September.

Pig Iron.—Most of the buying now being done is for the present quarter, both producers and consumers being apparently disposed to await developments of the next two or three weeks before coming to terms on business for the last quarter, while 1906 is hardly as yet thought of. Great activity is reported among the furnaces of the Lehigh and Schuylkill regions, which have all they can do. The smaller stack of the Warwick Iron & Steel Co., which has been out of commission for several weeks, was blown in last week, and the Emaus furnace of the Reading Iron Co. is also reported to have been started up. Preparations are being made to blow in the Temple furnace and one of the Empire Iron & Steel Co. at Reading which is undergoing repairs. Such facts indicate that furnace men look for a busy fall at satisfactory prices. For the present these remain steady and practically unchanged as follows:

No. 1X Foundry	$17.25 to 17.50
No. 2X Foundry	16.25 to 16.75
No. 2 Plain	15.75 to 16.25
Standard Gray Forge	14.75 to 15.00
Ordinary Gray Forge	14.25 to 14.50
Basic	15.25 to 15.75
Low Phosphorus	20.25 to 20.75
Southern No. 2X, rail	16.00 to 16.25
Southern No. 2X, dock	15.50 to 15.75

Finished Material.—Nearly every line shows an increase in orders, and reports from some of the mills of the United States Steel Corporation indicate that they cannot promise to fill new contracts before next spring. Premiums of $3 a ton have been asked for anything like prompt delivery by others. Greater activity is reported both in bar iron and in the plate mills, and the prospect is bright for an extremely busy fall. Schedule prices remain unchanged as follows: Beams, channels and angles, according to specifications, 1.73½c to 1.90c; refined iron bars, 1.63½c to 1.80c; steel bars, 1.63½c to 1.70c; plates, 1.73½c to 1.80c.

Old Material.—Increased activity at the mills is shown in the greater demand for scrap and an advance in prices, especially for old iron. Some rolling mills report the outlook better than for two years past, and orders are being placed more freely. Prices are quoted as follows:

Old steel rails	$16.00 to 17.00
No. 1 steel scrap	15.50 to 16.00
Old steel axles	17.00 to 18.00
Old iron axles	21.00 to 22.00
Old iron rails	19.00 to 20.00
Old car wheels	15.00 to 16.00
Choice scrap, R. R. No. 1 wrought	18.00 to 19.00
No. 1 yard scrap	16.00 to 16.50
Machinery scrap	14.50 to 15.00
Low phosphorus scrap	19.00 to 20.00
Wrought iron pipe	14.00 to 14.50
No. 1 forge fire scrap	13.75 to 14.25
No. 2 forge fire scrap, ordinary	11.00 to 11.50
Wrought turnings	11.75 to 12.50
Axle turnings, heavy	14.00 to 14.25
Cast borings	8.75 to 9.25
Stove plates	11.25 to 11.75

BIRMINGHAM.

Market is Strong, But Demand is Not So Heavy.

BIRMINGHAM, Ala., Aug. 7.—The Southern pig iron market is still very strong, though the demand is not as active as it was during the last half of July. Two or three of the smaller furnace companies in this district have been selling some of the lower grades of foundry iron under the regular quotations, but this business has not been very extensive and as far as can be learned, is not being continued this week. There are some sales still being made, the aggregate for the past week being fairly good and showing prospects up in a bright manner. There is no doubt that consumers are to enter the market again before the end of the year for a large quantity of iron and the Southern furnaces are going to be called on to furnish no small amount of the supply.

There is no hesitation about the raw material supplies in this district. The furnaces are getting a better supply of coke now, though it is reported that the furnace companies have to buy coke because of the coal miners' strike, which is still on in this State.

The following iron prices are given: No. 1, foundry, $12.50; No. 2, foundry, $12; No. 3, foundry, $11.50; No. 4, foundry, $11; gray forge, $10.50 to $10.75; No. 1, soft, $12.50; No. 2, soft, $12.

No. 2 foundry is said to have been sold in this district lately at $11.75 and even $11.50 per ton. If that price is being accepted now, it cannot be verified. Some concessions are admitted on No. 4 foundry and gray forge, but nothing on Nos. 1, 2 and 3 foundry nor on Nos. 1 and 2 soft.

The steel plants are still doing nicely. The various steel industries at Ensley, Ala., are working on full time. The plant of the Empire Plow Co. will be in full operation before the end of the month, and the statement is made that orders are on hand which will require operation day and night to catch up.

T. T. Hillman, president of the Pratt Consolidated Coal Co., the largest independent coal company in the State, and also interested in iron and steel industries in this district, died last Friday at Atlantic City, N. J., to which place he went in the hope of recuperating his health.

The National Wire Cloth Co., Niles, Mich., has recently erected 17 additional looms for the manufacture of wire screens, and 19 more will be put up as soon as they can be made. The plant was shut down for a short time pending the completion of a galvanizing mill, which is being installed under the direction of H. E. Sterrett, of Chicago. The plant consists of a galvanizing tank and an electric dynamo. It is the desire of the company to produce if possible non-rusting wire screen.

NEW YORK.

Pig Iron Prices Firm and Tending Upward—Great Demand for Structural Steel Continues.

OFFICE OF *The Iron Trade Review*,
ROOM 1315, No. 150 NASSAU ST., August 7.

Pig Iron.—The local market had no share in the heavy transactions in basic and other grades of pig iron reported in Philadelphia and the west during the past week. Even inquiries were few and sales were almost entirely limited to small consignments to regular customers for current needs. The aggregate of the week's transactions does not exceed a very few thousand tons, mostly Northern Foundry iron with some special and mill grades. In spite of the apparent lack of interest, prices rule firm with a tendency to improve. Furnaces are not anxious to sell and consumers seem to be satisfied to supply their present needs. However, echoes from more active points in other fields have reached here and are having their effect. Thus the report of the sale of 15,000 tons of Southern basic at $13, furnace, and that of 2,000 tons of Pennsylvania, delivered at $16, are reflected in the atmosphere of the local market. Prices are easily maintained, and it would require very little pressure to send them upward. The following are prices at tidewater:

Northern No. 1 Foundry	$16.50 to 16.75
No. 2 Foundry	15.75 to 16 25
No. 2 Plain	15 25 to 15.50
No. 1 Southern Foundry	15.25 to 15 75
No. 2 Southern Foundry	14.75 to 15.25
No. 3 Southern Foundry	14.25 to 14 75
No. 4 Foundry	14.00 to 14.50

Pig Iron Certificates.—Certificates have been very steady with few transactions. One sale of February foundry at $15.50 was reported between calls on Monday. Pig iron warrants follow:

	Bid.	Asked.
August	15.00	15.50
October	15.20	15.50
November	15.15	15.50
December	15.15	15.50
February	15.25	15.75

Finished Iron and Steel.—Undiminished demand for structural shapes and rails and general improvement in the movement of the lighter forms characterized the week's market. So eager are consumers for structural material that the payment of $15 per ton premium for early delivery is common and it would not be difficult to secure more for material actually in hand. Besides the large orders for rails and bridge material placed by the Japanese Government and noted elsewhere in this issue, the sale of some large contracts for open hearth steel rails by th Tennessee Coal & Iron Co. were reported this week. One contract for 45,000 tons has been closed for 1906 shipment to begin in April at the rate of 5,000 tons per month. Negotiations are still under way for more than 150,000 tons of Bessemer rails for export and domestic shipment. Business in plates is steady with the reports of large orders for steel cars creating no little interest. The demand for sheets and bars has shown some improvement with prices held firmly. Rumors of cutting and of advances are not substantiated. We quote New York prices at tidewater: Angles, 3 to 6 in. x ¼ in. and heavier, 1.74½c; beams, 3 to 15 in. 1.74½c; 1.84½c; tees, 3 x 15 in., 1.74½c; beams, 18, 20 and 24 in., 1.84½c; tees, 3 x ¼ in. and heavier, 1.79½; plates, carloads, tank, 1.74½c; flange, 1.84½c; marine and ordinary firebox, 1.94½c; refined iron bars, 1.60c; soft steel bars, 1.64½ to 1.67c; sheets in carload lots, New York, No. 28, black, 2.40c.

Old Material.—There is a better demand for heavy steel, old rails, and wrought, but sales have been few. Dealers and speculators are willing to pay the highest prices, and consumers are beginning to show some interest in the market. The feeling in the trade is that prices will go higher. The following prices are f. o. b. approximately, at tidewater:

Old iron rails	$20.00 to 21 00
Old steel rails, long lengths	14.50 to 15.00
Old steel rails, short pieces	14 00 to 14.50
Relaying rails	20.00 to 21.00
Old car wheels	14.00 to 14.50
Old iron car axles	21 00 to 22.00
Old steel car axles	18 50 to 19.00
Heavy melting steel scrap	13.50 to 14.00
No. 1 railroad wrought scrap	17.00 to 18.00
Iron track scrap	15.00 to 16.00
Wrought pipe	11.00 to 12.00
Cast borings	8.00 to 8.50
Wrought turnings	12.25 to 12.75

The Metal Market.

NEW YORK.

OFFICE OF *The Iron Trade Review*,
ROOM 1315, No. 150 NASSAU ST., August 7.

Pig Tin.—A weaker tone has developed in the local market for pig tin during the past week with prices somewhat lower. Advices from abroad were apparently not favorable to higher prices. Today's closings: Spot, 32.50c to 32.75c; September, 32⅜c to 32⅝c; London, £149 10s and £148. Arrivals 895 tons to date, with 2,875 tons afloat.

Copper.—There was increased demand for refined copper in the domestic market and prices ruled firm. Few sales for foreign interests were recorded and the future of the market seems to depend upon domestic consumption. Today's closings follow: Lake and electrolytic, 15⅜c to 15⅝c; casting, 15c to 15¼c. London's closings today: £68 7s 6d and £68 17s 6d. Exports for the month 565 tons.

Lead.—There is a moderate consuming demand and the market remains firm. Prices are 4.60c to 4.70c. St. Louis, 4.55c; London, £13 18s 9d.

Spelter.—The market for refined spelter continues fairly active and prices are held firm at the last advance. Today's closings: Spot, 5.65c to 5.75c; St. Louis, 5.55c to 5.60c; London, £24.

Antimony.—The market is quiet but firm. Cookson's is nominal without quotations. Hallet's, 14 to 15 cents, and other brands 13 to 14 cents.

CHICAGO.

OFFICE OF *The Iron Trade Review*,
1164 MONADNOCK BLOCK, August 7.

Considerable buying of metals has emphasized the week under review. This activity has arisen largely from the growing scarcity of various products with corresponding advances in prices. Buyers are covering for their wants further ahead than at any other time this year, fearing a still greater scarcity of material before the end of the year. Under the impetus of the increased demand, copper has advanced ⅝ of a cent in two days. Pig tin is quoted higher than it has been for several years. Antimony continues scarce owing to the decreased shipments as a result of the war in the far east. Spelter and sheet zinc are both strong in tone and selling freely. We quote as follows: Lake copper, 16¼c for carload lots, and 16⅜c for less than carload lots. Casting copper, 16c for carload lots, and 16¼c for less than carload lots. Spelter, 5¾c for carload lots, and 6c for lesser quantities. Sheet zinc, 7c for carload lots of 600-lb. casks, and 7¼c for less than carload lots. Pig lead, 4.65c for 50-ton lots; 4.70c for carload lots, and 4.80c for less than carload lots. Antimony, 17c for Hallett's, and 18c Cookson's.

There is a strong demand for old metals and prices are moving upward. Dealers' quotations are approximately as follows: Copper wire, 13¼c; heavy copper, 13c; copper bottoms, 12c; copper clips, 12¾c; red brass, 11¾c; red brass borings, 9¾c; yellow brass, 8½c; yellow brass borings, 7¾c; pipe lead, 4c. Tea lead, 3.60c. Zinc, 3¾c.

SLIGHTLY REDUCED PRODUCTION OF PIG IRON

BY FURNACES IN JULY COMPARED WITH JUNE.

Tonnage Declines less than was Expected—Stocks of Merchant Furnaces Increased—Good Showing of Southern Stacks.

As was expected the tonnage of pig iron in the United States produced in July fell off somewhat from that in June, the figures as shown in the table being 1,822,485 gross tons in June and 1,719,728 gross tons in July, a decrease of 102,757 tons or 5.6 percent.

In most cases, however, furnaces were out of blast but a very short time and the decrease was not so marked as was anticipated, the activity being about four percent less reckoning on a basis of total capacity. The decline in activity was uniform throughout the various states, with the exception of Alabama. A number of record runs and the continuously good performance of some of the new furnaces in that state have contributed to its larger output.

The production, as will be apparent from the tables, is given by states with a view to better localization and classification. Instances, however, where but one company is producing in a state have necessitated the grouping of those states as indicated in order not to disclose the production of individual furnaces. Table I represents in a general way the activity of production. In column three are given the totals of the ratings of all furnaces in blast for any part of the month. A comparison of this column with column three of Table II will indicate the degree of continuous operation. Another view of the situation is obtained by comparing the actual output (column three, Table II) with the maximum possible tonnage; for example, Alabama is producing only 56.2 percent of what it is capable of. In Table II the method of grouping to avoid the publication of an individual company's figures is again resorted to, and only approximate figures are referred to by the footnotes. The output of the companies not reporting has been estimated very closely and affords a reliable total.

The tables are also arranged to present comparisons of the figures for June and July.

Table III shows an increase in July over June of 52,899 in the stocks tonnage, including both merchant furnaces and steel companies, although the capacity of the furnaces producing which did not report stocks, is 33,790 tons in excess of last month's figures. In view of the diminished production, this condition would seem to indicate that considerable iron was still stocked, which had been bought for future use. This opinion is borne out by numerous reports of stocked iron being sold. This would also indicate a decreased consumption.

In addition to the pig iron produced there was made in Pennsylvania, Illinois, Colorado and Ohio an aggregate of 33,787 gross tons of spiegel and ferro-silicon, Pennsylvania making about 20,000 tons.

Furnace Activity

TABLE I.

State	No. of Stacks (1)	No. in Blast (2)	Capacity per mo. in Blast (3)	Percent of Total Capacity Produced July (4)	June (5)
Pennsylvania	138	112	849,620	79.4	81.4
Ohio	56	40	356,675	71	81.1
Alabama	44	27	148,900	56.2	63.5
Illinois	21	18	175,600	83.4	50.7
Virginia	22	14	54,770	56.4	60
New York	20	14	107,975	69.5	69
New Jersey	10	7	32,600	55.2	71.4
Tennessee	20	12	41,150	52	66
Kentucky	6	2	6,100	32.8	28
West Virginia	4	2	13,600	20.1	41.7
Colorado	5	4	30,000	50.7	62.5
Wisconsin	5	4	22,970	69	82.8
Michigan	1	1	7,350	92.3	90
Minnesota	1	1	5,400	52.8	.....
Missouri	1	...	.....	.....	.....
Maryland	4	3	25,000	72.5	74.75
Georgia	1	...	4,500	.....	50.8
North Carolina	1	...	.....	.....	.....
Total	360	261	1,882,360	71	71.9
Unreported	13	11	77,120	.....	.....
Grand Total	373	272	1,959,480	75.7	79.5

Tonnage Report

TABLE II

State	Actual Make Steel Companies (1)	Merchant Companies (2)	Total July (3)	June (4)
Pennsylvania	599,792	146,197	745,989	783,818
Ohio	203,384	104,422	307,806	315,929
Alabama	59,407	67,420	126,837	123,060
Virginia	22,858	20,950	43,817	43,378
New York	37,414	54,163	91,577	97,030
New Jersey	.....	22,978	22,978	29,132
Tennessee	40,295	31,775	*72,070	82,398
Kentucky		.....		
West Virginia		.....		
Maryland		.....		
Illinois	174,047	34,777	*209,032	230,983
Colorado		.....		
Wisconsin		5,208		
Michigan	.....			
Minnesota	.....			
Missouri	.....	9,622	9,622	9,717
Georgia	.....			
North Carolina	.....			
Total	1,137,197	492,521	1,629,728	1,706,035
Unreported.				
Pennsylvania	60,000	29,000	81,500	92,750
Ohio	2,500	.....	2,500	19,500
Tennessee	.....	3,000	3,000	4,200
Wisconsin	.....	3,000	3,000	.....
Unreported total	62,500	35,000	90,000	116,450
Grand total	1,199,697	520,942	1,719,728	1,822,485

*Of the 72,070 tons Tennessee produced about half and Maryland nearly one-third. Illinois produced about 80 percent of the 209,032 tons and Wisconsin a little more than half as much as Colorado.

Stock Report

TABLE III

	Steel Co.'s. (1)	Merchant Furnaces. (2)	Capacity in blast not reporting Steel Co.'s. (3)	Merchant Co.'s. (4)
Pennsylvania	38,249	117,438	599,250	18,800
Ohio	500	110,043	191,560	6,750
Alabama	21,333*	112,020	.....	.....
Virginia	6,477	13,345	.....	2,500
New York	28,542	22,822	.....	10,175
New Jersey	.....	31,229	.....	.....
Tennessee	34,801	30,221	.....	.....
Kentucky		.....	.....	.....
West Virginia		12,200	.....	.....
Maryland		.....	25,000	.....
Illinois	24,944	.....	.....	.....
Colorado	.....	.....	3,000	.....
Wisconsin	.....	3,220	.....	.....
Michigan	.....	.....	.....	.....
Minnesota	.....	.....	.....	.....
Missouri	.....	21,315	.....	.....
Georgia	.....	.....	.....	.....
North Carolina	.....	.....	.....	.....
Total July	158,846	473,862	818,810	38,225
Total June	154,955	423,651	785,589	37,657
July, Grand Totals		628,708		857,035
June " "		575,806		823,246

*June figures.

Warrant Yard Stocks.

The statement of the stocks in the warrant yards of the American Pig Iron Storage Warrant Co. for the months of June and July as given below shows a decrease in both the amounts received and delivered during July as compared with June which left, however, larger stock on hand at the end of July:

On hand June 30th	88,900 tons	*81,200 tons
Received during July	6,800 tons	12,400 tons
Total	95,700 tons	93,600 tons
Delivered during July	2,300 tons	4,700 tons
Total on hand July 31, 1905	93,500 tons	89,900 tons

*June figures.

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A GREAT OPPORTUNITY LOST.

Impartially it cannot be said that the Semi-Centennial Celebration of the completion of the canal of Sault Ste. Marie to commerce was as it should have been. It is extremely doubtful whether the great majority of those present had any adequate comprehension of the importance of the event celebrated. It would not be surprising indeed if it should be proved that a considerable number of them had never heard of the canal at all.

Frankly, the proper element was not present and moreover inquiry fails to establish the fact that representative men of the great industries were even invited. By actual count there were only six persons present who were representative of the industries for which the canal was built, and as a matter of record it might be noted that these persons were Mr. W. G. Mather, Mr. J. H. Sheadle, Mr. Joseph C. Gilchrist, Mr. Wm. Livingstone, Mr. John R. Russel and Capt. James Stone. These six dwelt in an atmosphere alone and apart, for it does not appear that they were properly invited to any of the little functions that marked the occasion. Neglect might be the word to properly describe it. One of the little social functions was a luncheon at the Sault Ste. Marie Club, and yet to this affair Wm. Livingstone, president of the Lake Carriers' Association, representing over 1,000,000 tons of vessel property, was not invited. The lowliest member of the Michigan legislature with all his uncles and his aunts had cards in abundance. If any one of these should have been asked the position of Sault Ste. Marie in the commercial world, he would have been dumfounded at the question. Everywhere were to be seen the members of the Michigan legislature and the various lieutenants of the candidates for senatorial honors. Whispered conferences were held in the hotel lobbies regarding the chances of McMillan and Hill for a seat in the senate; but not one word was there anywhere said considering the need of a third lock at the Sault. The profusion of invitations to the various little functions in the hands of these political cohorts was quite mystifying to the small industrial group who were not favored with them, but who had nevertheless generously contributed $5,000 in money to make the celebration a success.

From the standpoint of an adequate celebration, the affair was neither well planned nor well managed; but from the point of view of a political revival, which undoubtedly was the thing that its real managers had in mind, it was a great success. The pity of it is, however, that the state of Michigan should have made a local pow wow out of what was intended to be a great national celebration. The canals of Sault Ste. Marie belong to the nation. All this is said with no discredit to the Hon. Peter White, of Marquette, who was by no means responsible for, and probably not conscious of, the political tinge that was given to the event. The fault lay wholly with the governor of Michigan in not giving to the president of the commission associates that were representative of the industries of the Great Lakes. The iron and vessel interests of the Great Lakes would have been well represented at the celebration had the commission been properly organized and had the affair been properly managed; but it was impossible to obtain from any source whatever any definite announcement of program even up to within a day or two of the date of the celebration. This circumstance was very confusing at first, but it becomes more clear now. Evidently the majority of the commission did not especially care to have those interests present. Had one of the great vessel fleets and one of the great iron mining companies been represented upon this commission the efforts of the Hon. Peter White, so nobly begun, would have been brought to a conclusion of lasting benefit to the whole country; but as it was, the speakers, excellent as they were, were conscious that they were talking of an audience that could not understand what they were talking about. The proper audience to understand them intelligently and appreciatively was not present. Their words as far as spoken effect is concerned, were wasted. Of course, they will be commemorated in print, but it is a matter of regret that they were not sounded before an audience that would repeat them in all quaters of the continent. The continued development of the locks at Sault Ste. Marie and the continued deepening of the connecting waters of the Great Lakes are abso-

lutely necessary, if industrial prosperity in this country is to continue uninterrupted. The whole industrial activity of the country rests mainly upon the iron trade of the Great Lakes. To acquaint the influential interests of the country in all quarters with this fact was the great opportunity of Sault Ste. Marie, but it was not seized upon because the State of Michigan thought it better to make out of it a mere political picnic.

LARGE COKE PLANT

Will be Built by the Lake Superior Corporation—Will Develop Ore Properties.

Vice President Drummond, of the Lake Superior Corporation, sums up the series of recent meetings of the directors at the Soo as follows:

"The two most important decisions reached by the directors were to proceed at once with the erection of a large coke plant in connection with the steel rail plant and to immediately take up development work on the Bessemer properties on the Canadian side with a view of getting Canadian ore for the rail plant. The samples of ore we have received show that ore of the desired quality is to be found and now we desire to know whether it is in sufficient quantity.

"The directors have not yet decided how the necessary capital for the erection of the coke plant will be secured. It may be taken out of earnings and then again the company still has quite a large amount of bonds which have not been issued. These might also be used. The steel rail plant is now using 150,000 tons of coke a year, and as every ton has to be brought in by rail this has greatly increased the cost of turning out rails. When the coke plant is in operation the company will bring in all its coal by steamer. The output of the coke plant will be sufficient to meet the requirements of all companies in Western Canada as well as those of our steel rail mill.

"The outlook is very promising as all the plants have sufficient orders booked ahead to keep them running several months."

Fort Wayne Iron & Steel Co.

At a recent meeting of the directors of the Fort Wayne Iron & Steel Co., Fort Wayne, Ind., the following officers were chosen: E. F. Yarnelle, president; C. H. Rawlins, vice president and general manager; H. C. Rockhill, secretary; J. W. Sale, treasurer; A. W. Tyler, superintendent; P. H. Joyce, general sales agent.

Authority was given the management to add at least two furnaces to the muck mill and some minor improvements at once.

Its capacity for finished material will then be definitely increased to minimum of 4,000 tons of finished bar iron per month, making this mill the largest producer of bar iron among the Independent Western plants.

The American Drop Forging & Tool Co., Wayland, N. Y., at a recent meeting of its stockholders decided to increase its capital stock from $15,000, as at present, to $25,000, in order to enable it to take care of a rapidly increasing business.

A lot of new and improved machinery has been recently added and the company is now in a position to execute orders for the "American" pipe wrenches promptly and to make almost anything in the hardware specialty or light drop forging line.

PERSONAL.

President Duntley, of the Chicago Pneumatic Tool Co., returned again to Europe July 31. He goes to inspect the European branches of his company.

Chas. T. Kruse has been appointed local auditor and assistant to the general manager, Capt. Thomas Walters, of the Jones & Laughlin Steel Co.'s iron mines. Mr. Kruse is recognized as a man of ability in matters connected with iron mining.

Wm. Torrance, mayor of LaCrosse, Wis., has resigned as president of the LaCrosse Bridge & Steel Co., because of the acceptance of a city contract by that firm.

Wm. V. Kelley, formerly president of the Simplex Railway Appliance Co., recently absorbed by the American Steel Foundries Co., was elected Aug. 2, to succeed Gen. Chas. Miller, as president of the latter corporation. Gen. Miller, resigned, will continue as chairman of the board. Speaking in reference to the recent bond issue by the American Steel Foundries, Mr. Kelley said that most of it had already been subscribed.

C. W. Shirling, for 23 years with the Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., resigned Aug. 1, to enter into the mining business in his own interest.

T. S. Fauntleroy, formerly secretary and manager of the Ewart Mfg. Co., of Chicago, has bought Mr. Ullmann's interest in the Moline Malleable Iron Co., St. Charles, Ill., and has succeeded him as president.

The U. S. Locomotive & Equipment Co., of Connecticut, being admitted to Ohio will locate in Dayton, with W. J. Tait as its local agent.

Paul J. Challen, formerly assistant to the manager of the Green Fuel Economizer Co., has resigned and accepted a position with The Stirling Co., boiler manufacturer, at its Philadelphia office. Mr. Challen was connected with the Green Fuel Economizer Co. for 13 years and has had a large experience as a designing and constructing engineer and is thoroughly conversant with the various types of boilers and their operation.

George Pickup, who has been with the Adams Co., of Dubuque, Iowa, has resigned his position and gone to Newark, O., to assume the management of the Wehrle Stove Works of that place.

J. P. Shaddeck, superintendent of the skelp mill of the National Tube Co. at Lorain, O., resigned Aug. 1 to accept a superintendency with the Alabama Steel & Wire Co. at its Gadsden, Ala., plant.

S. G. Luther, formerly at the head of the gas machinery department of the Power & Mining Machinery Co., Milwaukee, has severed his connection with that concern to accept a similar position in the East.

The Carnegie Technical Schools announce the oppointments of Prof. Clifford B. Connelley as head of the department of mechanical drawing in the School of Apprentices and Journeymen and Chas. G. Leeds as an instructor in the same department. Prof. Connelley has been supervisor of the industrial schools of Allegheny and Mr. Leeds for the past three years has been in the employ of the Westinghouse Electric & Mfg. Co., teaching mechanical drawing in the company's night schools. The appointments become effective September 1.

W. H. McFadden, of McIntosh, Hemphill & Co., and Major Joseph T. Spear, of the Pittsburg Valve, Foundry & Machine Co., both of Pittsburg, sailed for Europe Aug. 1 and will enjoy a vacation of about six weeks. They took a slow steamer out of Baltimore in order to get a perfect rest. While abroad they will visit the principal cities of France, Germany and England and may take a run to the Alps.

STRUCTURAL STRIKE

ARISING FROM SMALL CONTROVERSY AT NEW HAVEN, CONN.,

Is Made General Against the American Bridge Co.—Employment of non-union Labor is the Issue.

The executive board of the International Association of Bridge and Structural Iron Workers has authorized Secretary J. J. McNamara at the Cleveland office to issue a strike order to all the members of that association working on American Bridge Co. contracts. The order calling off the men has been sent out and will take effect Aug. 10. The only thing that can prevent the strike will be the satisfactory arrangement by the American Bridge Co. of its difficulties with the New Haven organization of bridge and structural iron workers.

According to an international officer, the grievance of the labor union lies in the fact that the American Bridge Co. refuses to recognize or negotiate with it. The agreement which the bridge and iron workers seek to establish with the bridge company is an arrangement for an eight-day and fifty cents. The bridge company will concede nothing but nine hours and forty-five cents. The reason as explained by Mr. McNamara for the uncompromising position of the Tmerican Bridge Co. is the breaking of a former agreement by the union. Since then, however, an entire change of officers has occured in the management of the union, and the present officers do not consider themselves responsible for their predecessors. The strike now seems certain. About eight or ten thousand men who are controlled by the union will be affected by the strike order.

A telegram to The Iron Trade Review from New York is as follows:

Non-Union Labor the Issue.

New York, Aug. 9.—Strike ordered on Monday by the general executive board of the International Association of Bridge and Structural Iron Workers against the American Bridge Co., creates a serious situation, even if no other companies are involved. The trouble began ten days ago when a local union at New Haven struck against the Boston Bridge Co., a sub-contractor building a bridge for the N. H. & H. railroad, employing non-union men. The American Bridge Co. refused to interfere. The strike will affect 10,000 employes of the company and also 30,000 others in building trades. It is likely to affect the west more than the east. The only issue is the employment of non-union men by a sub-contractor.

AMERICAN FOUNDRYMEN'S LEAGUE.

At the American Foundrymen's League convention held in Niagara Falls, N. Y., last week, there were representatives of upward of 500 open and non-union foundries. The following officers were elected: President, E. C. Stearns, Syracuse, N. Y.; vice president, Edward Gurney, Toronto, Ont.; treasurer, J. B. Jones, Utica, N. Y.; secretary, William Sleicher, Troy, N. Y. New York city was selected as the next meeting place in 1906.

The principal business of the meeting was the arranging for a bureau of employment for non-union molders throughout the United States and Canada.

FINAL VICTORY FOR THE COMPANY.

The Amalgamated Association of Iron, Steel and Tin Workers, through its advisory board, has issued a statement declaring the Youngstown mills of the Carnegie Steel Co. open under the conditions set forth by the board when it placed the matter in the hands of the men for a vote. The returns show a large majority in favor of opening the mills. The strike, which affected the Youngstown, Girard, Warren and Greenville mills, has been in force a little over a year. Under the provisions of the advisory board, all men who receive the union scale of wages may now return to their employment, but the mills are still closed, as far as the association is concerned, to men who do not receive the scale. This means that the finishers, to whom the company will not grant the union wages, cannot return, although the puddlers, who are largely in the majority, may return. The strike has been bitterly fought and won by the company after a long struggle.

CONTINUED ACTIVITY IN STOCKS.

The past week has continued to show a preponderance of bullish sentiment, though not so pronounced as in the week preceding. Permanent advances have not been so large, but several high points were reached during the week. United States steel made a new record for itself, running up to 105, which is one-eighth better than its previous high mark 104⅞, made about a year ago. The safety of the crops, which becomes more assured every day, together with the increasing number of favorable dividend reports and the comparatively few failures, is contributing to a clearly felt firmness in industrial stocks. The uncertainty of the results of the peace conference caused an unsettled feeling in some quarters, but a general confidence has prevailed. Pittsburg Coal is being closely watched and has declined steadily since a week ago, owing to its manifestly poor showing. The appended table giving the quotations on July 31 and Aug. 7 shows three marked advances, Pressed Steel Car, Sloss-Sheffield and U. S. Steel 5's. Reports that the car company has orders well into next year have boomed it, and the industrial activity of Sloss-Sheffield has raised those stocks. Rumors of a resumption of dividends by the Republic Co. have raised it a point. The activity in steel and iron plants is accompanied by a well defined feeling of sound and progressive conditions.

	July 31	Aug. 7	Changes
Allis Chalmers Co.	19¼	18½	—¾
Allis Chalmers preferred	63	61	—2
American Car & Foundry	37⅝	37½	+ ⅛
American Locomotive	49	49¼	+ ¼
American Locomotive preferred	111	111½	+ ½
American Steel Foundries	9¼	9¾	+ ½
American Steel Foundries preferred	.....	40	.....
Colorado Fuel & Iron	46¾	46¼	.....
Pittsburg Coal Co.	16	14¼	—1¾
Pittsburg Coal preferred	56	.....	.....
Pressed Steel Car	42⅞	46½	+3⅝
Pullman Palace Car	.....	240	.....
Railway Steel Spring	35¼	37	+1¾
Sloss-Sheffield	87	92⅝	+5⅝
Tennessee Coal & Iron	90½	90⅝	+ ⅛
U. S. Cast Iron Pipe & Foundry Co.	31⅜	30¾	— ⅝
U. S. Steel	35½	36⅜	+ ⅞
U. S. Steel preferred	103¼	103¾	.....
U. S. Steel 5's	95⅝	97⅞	+2¼
Republic Iron & Steel	21¼	22¼	+1
American Shipbuilding	53¼	53¼	.....
American Shipbuilding preferred	106	105¾	— ¼

Large Orders for Japan.

A rush order, the details of which have been covered with the greatest secrecy, has been given to the United States Steel Corporation by the government of Japan, for 350 steel bridges, 150 locomotives and 2,000 cars. The steel is to be used in the construction of the Seoul-Wiju line in Manchuria, and the requirements of the contract are that the material shall be delivered inside of two months. The locomotive contracts go to the Baldwin Locomotive Works, and the car contracts are to be built, one-half by the Western Car & Foundry Co., and the other by the American Car & Foundry Co., of Bewick, Pa. The orders aggregate in value $4,725,000, and as the material has been ordered delivered overland the freight charges will add over a million dollars to that amount.

FINANCIAL NOTES.

At a recent meeting of the stockholders of the Central Iron & Steel Co. a proposed increase of the company's indebtedness to $1,500,000 was approved. Just what the plans of the company are, has not been published.

The Seneca Chain Co., Kent, O., has increased its capital from $50,000 to $100,000.

The American Radiator Co. paid its preferred stockholders Aug. 5 a dividend of 1¾ percent and on Sept. 30 will pay common shareholders at the rate of 1 percent.

Feeling concerning the Cambria Steel Co. is very favorable because of the current report that the earnings are considerable in excess of the six percent dividends. A large sum is being spent by the company in the matter of improvements and additions to the plant.

At the semi-annual meeting of the Buckeye Steel Castings Co., held Aug. 2, the regular semi-annual dividend was declared. The company has had a prosperous six months and is now quite busy.

The National Carbon Co., capitalized with $4,500,000 7 percent preferred stock and $5,500,000 common stock, recently paid its semi-annual dividend, common stock paying 1½ percent.

The directors of the American Smelting & Refining Co. will hold a meeting in September and it is thought that the dividend rate on the common stock will be increased from 5 to 6 percent.

A very decided feeling is prevalent that the Republic Iron & Steel Co. will resume its dividends at the fall meeting of its directors, though a great deal of sentiment is unfavorable to that payment.

The U. S. Cast Iron Pipe & Foundry Co. will meet shortly to declare the regular quarterly dividend of 1¾ percent on its preferred stock, payable Sept. 1. The dividend on preferred stock has come to be regular, but it is the policy of the company to devote its surplus to improvements and no promise has been made of any immediate payment of dividends on common.

Although the earnings of the Bethlehem Steel Corporation, according to a representative of that company approach $4,000,000 a year, which is at the rate of more than 25 percent on its preferred stock there is no prospect of a dividend on the common stock in the near future, as it is the object of the management to build up a large working capital.

The Pressed Steel Car Co., Pittsburg, has declared the regular quarterly dividend of 1¾ percent on its preferred stock, payable Aug. 29. Books close Aug. 8 and reopen Aug. 29.

The Griffin Wheel Co., Chicago, has increased its capital stock from $4,000,000 to $5,000,000.

The Wheeling Roofing & Cornice Co. has issued $100,000 of bonds for improvements to plant; office, Chapline street, Wheeling, W. Va.

The gross earnings of the American Shipbuilding Co. increased in the fiscal year ending June 30 last over 100 percent as compared with the fiscal year ending June 30, 1904. This good showing caused the resumption of dividends on the common stock. A comparison of the figures for the last fiscal five years follows: Fiscal year 1905, $2,218,000; fiscal year 1904, $1,028,175; fiscal year 1903, $2,212,841; fiscal year 1902, $2,507,551; fiscal year 1901, 1,998,542. The table of gross earnings shows an increase this fiscal year over 1904 of $1,189,825, or more than 100 percent. In 1904 the company paid one dividend of 1 percent on the $7,000,000 common stock. It has paid regularly quarterly dividends of 1¾ percent on the $7,900,000 of preferred stock.

William Garpour and John C. Pinnington, receivers for the Rogers Locomotive Works, of Paterson, have filed their final report. It shows total receipts of $182,286, of which $123,840 has been paid to creditors.

At the annual meeting of the stockholders of the Columbus Chain Co., Columbus, O., Charles M. Wambaugh was elected president; I. B. Cameron, vice president; Scott A. Webb, treasurer; H. P. Ford, secretary; and Daniel Carroll, superintendent of manufacture. These, with Howard C. Park, compose the board of directors. All were reelections. The regular dividend of 6 percent was declared on the preferred stock and one of 10 percent on the common stock of the company. The company has $200,000 of preferred and $200,000 of common.

The burst of activity and strength in Allis-Chalmers preferred is due to the confident expectation in well-informed quarters that the dividend on the preferred stock will soon be resumed, very probably in September. The dividend is 7 percent cumulative and 1¾ percent was paid quarterly, beginning July 1, 1901, until February of 1904, since which time there has been no distribution. On Aug. 1 the company was 10½ percent in arrears of payments.

On Aug. 1 the Wheeling Mold & Foundry Co. paid an initial dividend of 2 percent and the La Belle Iron Works, paid a dividend of 1½ percent.

MOVED A BUILDING

Instead of Waiting to Get New Structural Material—Quick Work.

Some idea of the manner in which modern methods may be applied in case of emergency may be obtained from the announcement that the Walker works of the American Bridge Co., and the site on which it stood was sold to the Mesta Machine Co. Negotiations were opened and Mr. will be moved to the latter place and set up.

On July 12 the plant of the Scranton Steam Pump Co. was destroyed by fire at a time when the company was extremely busy and crowded with orders. To order steel for a new building would mean the loss of from six to eight months. Wilbur L. Slack, of the Real Estate Trust Co., of Pittsburg, called the attention of the pump company to the vacant Walker plant, which has not been used since the consolidation of all the plants of the American Bridge Co., and the site on which it was sold to the Mesta Machine Co. Negotiations were opened and Mr. Slack sold the building, which contains 400,000 lb. of steel, to John W. Fowler, president of the Scranton Steam Pump Co., which will be enabled now to resume operations within thirty days in a building admirably adapted to its business. Mr. Slack was formerly secretary of the Mesta Machine Co.

Heavy Orders for Signals.

The Hall Signal Co., New York city, has received contracts to equip with automatic block signals the Lake Shore & Michigan Southern, between Erie, Pa., and Nottingham, O., the Union Pacific, 39 miles of double track, the Chicago & Northwestern, 41 miles of double track, and the Delaware & Hudson, 46 miles additional. The equipment of the Lake Shore, when complete, will be the most elaborate of any road of equal mileage. Between Erie and Nottingham the electro-gas signal system will be installed, and from Nottingham to Chicago, the Union Switch & Signal Co. will put in the electric-motor system. The new siguals will be located on an average a mile and a half apart and will add immensely to the train capacity of the line. The work of installation will require two or three years.

The Fanny furnace of the Cherry Valley Iron Co., Pennsylvania, is out of blast for relining.

BUSINESS EXCELLENT

And Prospects Favorable in the New York Machinery Market.

OFFICE OF *The Iron Trade Review*,
521 PARK BUILDING, August 7.

Business in all classes of general machinery is good, and the prospects for the future are excellent. Nearly every one interested in the trade reports conditions well up to the average for the summer season and all agree that business is much better than last year. Only one manufacturer encountered during the rounds of the week spoke of "only fair to middling" demand; the general feeling being one of satisfaction. A number of the shops are behind in shipments, and more than one plant is working extra time. Foreign trade seems to be growing steadily, especially in the Spanish-American countries and for some months past in Japan. Most of the orders booked for export are small individually, but the aggregate is considerable.

The railroads have been heavy purchasers during the month. A large list issued by the Erie railroad has been supplied by the Prentiss Tool & Supply Co., Manning, Maxwell & Moore and the Niles-Bement-Pond Co. The same railroad has sent out specifications for additional equipment for its shops.

The work of erecting the Manhattan bridge, which will begin in the near future, is likely to create an increased demand for high grade tools required for construction of that kind, and machinery men are watching developments with considerable interest. A pumping station to be erected at Gravesend by the New York Department of Water Supply, Gas and Electricity, bids for which will be received until Aug. 9, also opens possibilities for comfortable orders.

Although all classes of machinery have enjoyed a very satisfactory demand, some lines have shown greater activity than others. The manufacturers of pneumatic tools are perhaps more rushed with orders than those of other classes. The call for electrically-driven machinery has been excellent. Indeed, the demand for self-driven units seems to be increasing everywhere. Business in railway machinery has been very good, trade of the week having been made up of scattered orders. The call for electrically-driven traveling cranes has been more than usually good and business in small tools has been and is excellent.

The Niles-Bement-Pond Co. is evidently doing a brisk business, for the Pond works are going full tilt until midnight, and several other plants are working night shifts.

The Chicago Pneumatic Tool Co. is crowded with orders on every hand. It recently booked some excellent orders for machinery to be used on a railway in Brazil, and another from Japan.

The VanDyke-Churchill Co. reports business much better than the same season last year. Its books contain several recent orders to be shipped to Spanish-American countries, among others one to Cuba and one including steam hammers, lathes, drills, grinders and pipe machinery, amounting to two or three carloads, to the Velardena Mining Co., of Mexico.

Fairbanks & Co., note a gradually increasing demand for gasolene and gas power units. Orders for the week include one for four 440 h. p. gasolene engines, to be installed in Camden, N. J.

James McCabe finds conditions about normal with a good outlook for the remaining months of the year.

Schaeffer & Budenberg, of Brooklyn, who have within the past week opened an office in the Havemeyer Building in the machinery district of New York, report business steady with no particular signs of improvement. Exports to Central and South America are, however, constantly increasing.

The Webster Mfg. Co. estimates that business in belting is at least 50 percent better than a year ago.

The Jeffrey Mfg. Co. notes very satisfactory conditions in all lines.

The Link-Belt Engineering Co. finds the demand for its products very good, especially in Porto Rico and Cuba.

Thayer & Co., Inc., reads the signs of the times as extremely favorable. Both present orders and those in immediate prospect are very satisfactory.

The Elmer P. Morris Co. finds the demand for railway supplies better than usual for this time of the year. Among its more recent contracts is one for $30,000 worth of iron pillars for a South American trolley road.

The Prentiss Tool & Supply Co. has no cause for complaint. Its orders for the month have been very gratifying and more railway business is in prospect.

Maxwell, Manning & Moore report business very good in all lines, and conditions decidedly better than last year. Japan has furnished some very pretty orders and a good, scattering demand from that country seems to continue.

STEEL PLANT

May be Built by Milliken Bros.—Distinguished Engineers Employed.

As several reports have appeared in the daily press relative to the business of Milliken Brothers, New York, and as these reports in many cases are incorrect, misleading and published without their knowledge or consent, they desire at this time to make the following statement.

This firm has now been engaged in the steel and iron business in New York city for nearly fifty years. The business has grown very rapidly in the last few years and now extends to all quarters of the globe. In order to more conveniently handle this business, it has been decided to conduct it under the corporate form and under the name of Milliken Brothers, Incorporated. The new corporation of Milliken Brothers has a capital of $2,500,000.00 and the stock is held entirely by Edward F. Milliken and Foster Milliken, the sole owners of the present business, and no new interests are included in the new arrangement. The business in future will be conducted the same as in the past. As far as the reports are concerned on the building of an open hearth steel plant and rolling mill to roll the raw material used by them, no plans have been definitely decided on, nor will any definite action be taken in connection with this matter for several months yet. Milliken Bros., Inc., may decide, however, to build rolling mills for the purpose of rolling structural shapes and plates, as the necessity of doing so has become apparent to them in order to hold and control their vast export business, and their location on tidewater is advantageously situated for export trade. Mr. George L. Reis, formerly general manager of the Illinois Steel Co. and lately general manager of the Lackawanna Steel Co. at Buffalo, N. Y., and Mr. Alexander K. Hamilton, lately chief engineer of the Lackawanna Steel Co., have entered their employment. No association of outside interests or manufacturers is contemplated in case this proposed steel plant should be built. They are not engaged in the purchase of any additional property at Staten Island, as they already have a site more than ample for their present bridge and structural steel plant and rolling mill, should they decide to built the latter. This site is probably one of the largest in New York city, covering several hundred acres of ground, with over one-third of a mile of water front. It is located on the north shore of Staten Island.

RECIPROCITY.

Is Receiving Much Attention in Cincinnati.—The Machinery Trade.

CINCINNATI, Aug. 7.—The activity of the machinery trade, considering that we are in the midsummer period of the year, is in a highly satisfactory position. Orders have been of sufficient volume to insure some of the shops enough business to keep them running through the year 1906. Foreign business has been quite a feature in the trade. Shipments in July were larger than for several months, showing that the shops generally are working to practically full capacity. The above comments apply to the trade in wood-working machinery as well as to the machine tool industry. Foreign and domestic orders have been received during July for wood-working machinery, which convince manufacturers in that line of the continuance of the present prosperity. Japanese orders and orders from the Panama Canal Commission have been factors in the month's record.

The National Reciprocity Conference, which is to be held in Chicago on August 15, is receiving considerable attention by the machine tool builders here. One of the prominent men in this industry stated that American machinery was threatened with an increase in import duties, by Germany, which would have the effect of increasing the cost of our machinery about 5 percent over the present price to the German buyer. The Cincinnati Metal Trades Association will appoint a delegate to represent the association at the conference, and Mr. Thos. P. Egan, of the J. A. Fay & Egan Co., has been named by the Manufacturers' Club as its delegate to the convention. It is also expected that the National Machine Tool Builders' Association will name a representative. Mr. F. A. Geier, of the Cincinnati Milling Machine Co., will attend either as a delegate or on his personal account, as he is impressed with the importance of the matter.

The Streit Machine Co. is having a good demand for its automobile engines, which the company has been making in addition to its machine tool line. In machine tools trade is only fair with this company, which is attributed to the summer season.

The Cincinnati Planer Co. has enjoyed a good run of orders and is now able to keep going for several months with orders now in hand. Among the orders recently received by the company was one for six planers from the Panama Canal Commission, two for the L. & N. Ry. shops, one for the Alaska Central Ry., one for Italy, and ten on Japanese orders. The company shipped out more planers in July than in any month in its history.

The Lodge & Shipley Machine Tool Co. reports trade holding up quite satisfactorily and the outlook good for the future.

The Cincinnati Milling Machine Co. is completing the new addition to its large plant. The company reports conditions highly satisfactory and both foreign and domestic trade good.

The affairs of the Barriett Electric Co., which were so seriously disordered by the sudden death of Mr. Barriett some time ago, have been adjusted and a company was incorporated on July 28, with a capital of $25,000 under the name of the Barriett Electric Co. The incorporators were L. K. Behrens, C. H. Haddell, Edward Shideler, E. N. La Ralde and Henry Bentley. The new company will operate the old plant. It purchased the old concern through bankruptcy sale.

The J. A. Fay & Egan Co. reports foreign and domestic orders received during the month indicate a continuance of the present prosperity. About one-third of the orders were for export, and shipments were made to Panama and to Japan.

The quarterly dividend of 1¼ percent on Hamilton Machine Tool Co. preferred stock has been declared payable August 1.

Bids were received by the Cincinnati Water Works Commissioness on July 28, for sluice gates and mud valves for the filtration plant of the new water works. There were three bidders, the Fairbanks Co., of New York and Pittsburg; the Coffin Valve Co., of Boston, and the Roe-Stevens Mfg. Co. Some of the bids were lower on some parts than others and if possible the contract will be divided. The bids were referred to the chief engineer for computation and report. His estimate of the cost was $152,500.

MINING INRERESTS MERGED.

Ore to be Shipped to the United States—Steel Tug Is Launched.

Toronto, Canada, Aug. 7.—An important step looking to the development of the Abikokan iron range has been taken by the amalgamation of the mining interests of Mackenzie & Mann and Marks & Wiley, whose iron properties embracing between 20,000 and 25,000 acres, will be immediately transferred to the Port Arthur Iron Mines Co., Ltd., for the incorporation of which application has been made with a capital of $500,000. Arrangements have been completed by which large consignments of sulphur ore will be shipped to the United States, though it will hardly be possible to begin shipping this year.

On July 31 the Canadian Shipbuilding Co. launched from its yards here a steel tug specially built for the Great Lakes Dredging Co., of Port Arthur, Ont., for ice-breaking and dredging. It is one of the largest tugs in Canada, having a length over all of 110 ft., 24 ft. breadth of beam, draught of water loaded, 12 ft. The machinery is of the fore and aft compound type with cylinders 20 and 40 in. x 36-in. stroke, turning a steel screw propeller 10 ft. in diameter.

Thomas J. Drummond, of Montreal, vice president of the Lake Superior Corporation Co., who has just returned from Sault Ste. Marie, states that the showing of the financial year just closed is highly encouraging. Though the works have been in operation only eight months out of the twelve, there will be a balance to the good after meeting fixed charges. The present output amounts to 500 tons of steel rails per day, and between 475 and 500 tons of pig iron. The total output of the rail mill since it was put in operation eight months since, amounts to about 100,000 tons of rails.

The British Privy Council has refused the A. R. Williams Machinery Co., of Toronto, leave to appeal from the decision of the Railway Commission giving the Grand Trunk Railway power to expropriate the land at the corner of York and Front streets, now occupied by the firm. The decision is an important one to the industries of Toronto as it relieves the uncertainty as regards construction of a new union station. It finally settles the question as to the right to expropriate in which many other firms in the manufacturing district were interested.

The George B. Meadows, Toronto, Wire, Iron & Brass Works Co., has removed from 117 King street West, Toronto, to its new plant at 67 Wellington Place, Toronto.

The Fairbanks Co., of Chicago, manufacturer of boilers, machinery, etc., has secured eight acres of land on Bloor street West, Toronto, as a site for the erection of a large factory to cost $100,000.

The furnace of the Temple Iron Co., Pennsylvania, was blown out July 11.

BLAST FURNACE OPERATIONS.

Large blast furnaces are to be built at Lubeck, Germany, to make iron from Swedish and other imported ores. The seaport towns of Germany are desirable locations for blast furnaces because of the low water freight rates.

The new No. 3 furnace of the Woodard Iron Co., Woodward, Ala., is performing especially well in producing on an average of 260 tons of pig iron per day.

The Bessemer furnaces of the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., are suffering from a scarcity of labor.

The Roane Iron Co., Rockwood, Tenn., has closed down its Rockwood furnace temporarily, presumably as a result of fuel and labor scarcity.

The Pequest furnace at Belvidere, N. J., has a strike of iron workers on its hands. The men are demanding more wages which the company refuses to grant.

The Sloss-Sheffield furnaces at Sheffield and Florence, Ala., are still somewhat handicapped by the short supplies of coke, due to the continued strike of the Birmingham coal miners.

The Fannie furnace of the Cherry Valley Iron Co., at West Middlesex, Pa., has been blown out for repairs. Just how long it will be out of blast will be determined by the extent of repairs which will be necessary.

The old Mary Pratt furnace, near Birmingham, has been sold as scrap to Weller & Co., by the Alabama Consolidated Coal & Iron Co. A considerable quantity of iron is included in the deal.

The Temple furnace of the Reading Iron Co., which has been in continuous blast for one year and 11 months, has been blown out for general repairs. It is not likely that the stack will be put in blast before some time in October. During the 23 months that the stack has been in blast about 70,000 tons of metal have been produced.

The Virginia Iron, Coal & Coke Co. had its Bristol furnaces out four days and the Max Meadows out three days in July. These furnaces are both in Virginia.

The furnace of the Princess Iron Co., Virginia, was in blast only 17 days in July owing to the necessity for making repairs.

The Top Mill furnace of the Wheeling Steel & Iron Co., West Virginia, was out of blast three weeks in July, and resumed July 24.

The furnace of the Zenith Furnace Co., Minnesota, resumed operations July 12 after having been out for repairs since May 28.

The Mayville furnace of the Northwestern Iron Co., Wisconsin, was out July 9 and lighted again Aug. 2.

The Thomas Furnace Co.'s furnace, Wisconsin, was stopped during the latter part of July and for three days in August for repairs, but has been started up again.

Six hundred and fifty tons of ferro-phosphate was stocked in Tennessee during July.

The Ashland Iron & Mining Co., Kentucky, has in connection with its plant a slag cement mill with a capacity of 500 barrels per day which it is expected will start Aug. 15.

The furnace of the Georgia Iron & Coal Co., Georgia, is out for repairs.

The furnace of the Alabama Steel & Wire Co., Alabama, was in blast for 15 days in July.

The Tutwiler Coke & Iron Co., Alabama, had its furnace in operation 14 days during July, after which time it was blown out to repair the stoves.

No. 2 furnace of the Republic Iron & Steel Co., Alabama, was out four days in July.

The West End Furnace Co., Virginia, found it impossible to get its furnace, which has been down for some time, ready to operate in July, but expects to blow in during August.

The furnace of the Marting Iron & Steel Co., Ohio, was banked one week for repairs.

There were 1,584 tons of ferro-silicon stocked in Ohio during July.

One stack of the LaBelle Iron Works was blown out last week for repairs.

The Bon Air Coal & Iron Co., Tennessee, expects to be receiving coke from its new coke oven plant of 200 oven capacity at Eastland, Tenn., by Aug. 15.

No. 2 furnace of the Longdale Iron Co., Virginia, is not running.

The slag of the Buffalo Union Co.'s furnace is to be used by the new Portland cement plant being erected near it.

Contracts have been awarded by the Republic Iron & Steel Co., for the building of a new 450-ton blast furnace at Hazelton, Pa., and the old furnace there is to have its capacity increased. These furnaces are to be connected with the Bessemer plant by direct hot metal process.

Emaus furnace of the Reading Iron Co., Reading, Pa., was lighted Aug. 4 after being idle since last month.

No. 1 furnace of the Warwick Iron & Steel Co., Pottstown, out of blast for two months for repairs, has been again blown in.

The Allentown Rolling Mills blew out one furnace early in July; the other has been out all year.

The Juniata Furnace & Foundry Co. blew out its Marshall furnace July 30 for relining.

The Chapman Iron, Coal & Coke Co., New York city, has recently made a change in managers. M. F. Bonzano is now in charge and is gradually increasing the output of its furnace. Beginning with 100 tons he has enlarged the production to 150 tons and made one record run of 176 tons. The principal make of this furnace is No. 1 Foundry, No. 2 Foundry and gray forge.

The St. Louis Blast Furnace Co.'s furnace has been out of blast since June 13, and will resume, it is expected about Aug. 15.

The Susquehanna Iron & Steel Co.'s furnaces in Pennsylvania, Aurora and Vesta are both out of blast.

The Youngstown Sheet & Tube Co. had its furnace in operation only eight days during July.

The Jenifer furnace of the Jenifer Furnace Co., Alabama, has been idle for some time and has exhausted the iron in its yards.

The furnace of the Stewart Iron Co., Pennsylvania, was in blast up to July 16 only.

The Carbon Iron Works, Pennsylvania, have been out of blast since June 1.

The Virginia Iron, Coal & Coke Co., had its Bristol furnace out four days and the Max Meadows out three days in July. These furnaces are both in Virginia.

The furnace of the Princess Iron Co., Virginia, was only in blast 17 days in July owing to the necessity for making repairs.

The Top Mill furnace of the Wheeling Steel & Iron Co., West Virginia, was out of blast three weeks in July and resumed July 24.

The furnace of the Zenith Furnace Co., Minnesota, resumed operations July 12 after having been out for repairs since May 28.

The Mayville furnace of the Northwestern Iron Co., Wisconsin, was blown out July 9 and lighted again Aug. 2.

The Thomas Furnace Co.'s furnace, Wisconsin, was stopped during the latter part of July for three days for repairs, but has been started up again.

The E. & G. Brooke Iron Co., Birdsboro, Pa., reports a very bad month for their large furnace, but are obtaining better results now.

Magnetic Controllers on Ore Unloaders.

In *The Iron Trade Review* of Aug. 3, the Hulett automatic ore unloaders installed at the works of the National Tube Co., Lorain, O., were described. Mention was made of the fact that controllers were of the magnetic type built especially for heavy service. These magnetic controllers are illustrated herewith.

The controllers were built by the Electric Controller & Supply Co., Cleveland, and all the motors of the unloaders are controlled by them. The controllers consist of a number of magnetically operated clapper switches, which cut resistance in and out of the motor circuits. The switches are operated by solenoids placed made any longer than necessary. The master switches are small and allow the operating cages to be much smaller than would be necessary if manually operated controllers were installed. All resistances are of the cast grid type. All emergency switches being geared, are positive in action.

In Fig. 1 are shown the magnetic controllers which control the movement of the unloaders in and out of the boat and the raising and lowering of the bucket. The upper bank controls the bucket and the lower bank the movement of the entire machine. The small switches at the left are the accelerating or resistance switches. These

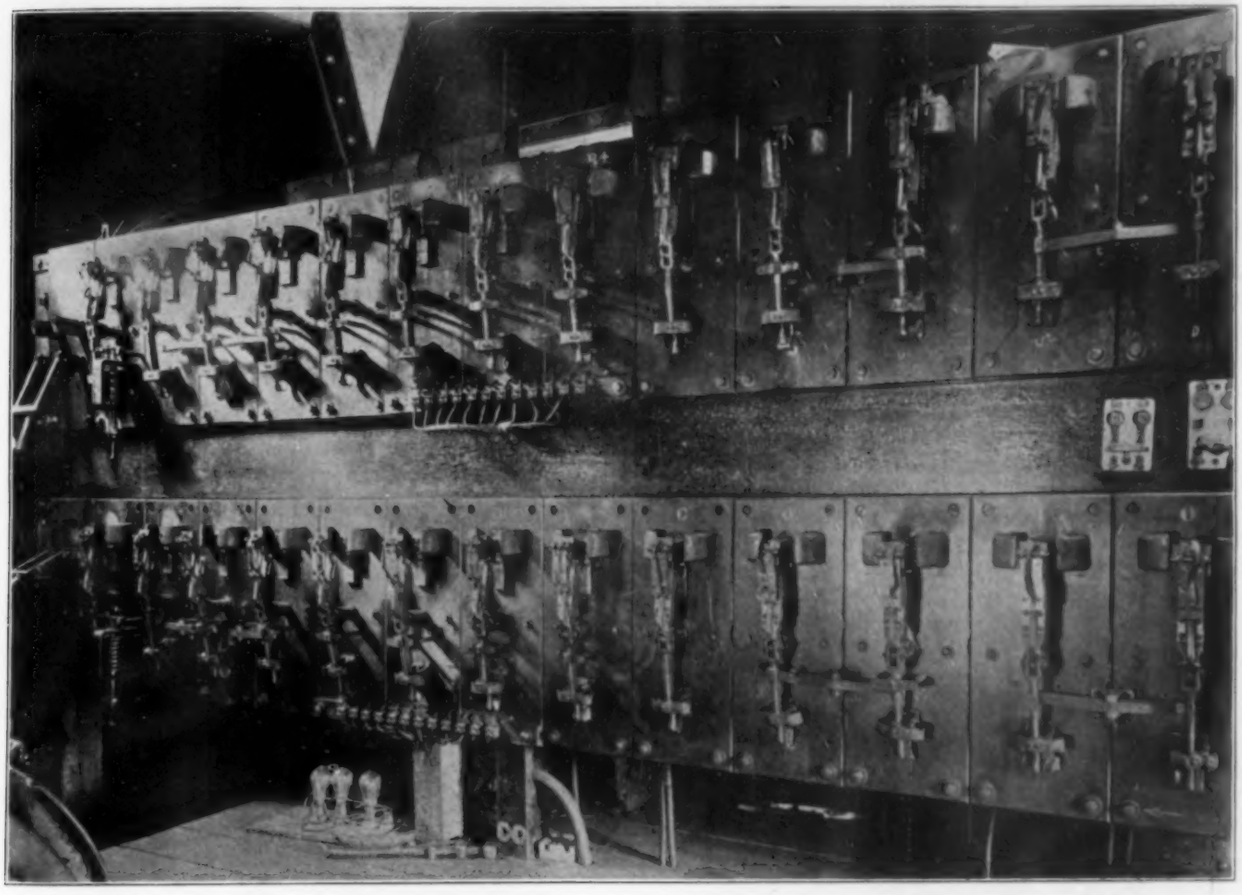


FIG. 1.—MAGNETIC SWITCH CONTROLLERS FOR BUCKET HOIST AND TROLLEY MOTIONS, HULETT AUTOMATIC ORE UNLOADERS, LORAIN, OHIO.

on the back of the switch panel. The main contact of each switch is a heavy laminated copper brush. The final break, however, when it occurs is made between carbon contacts, and the arc is instantly ruptured by a powerful magnetic blow-out. Each controller is operated by a master switch located in the proper operator's cage. Between the master switch and the main controllers, small wires carrying only current enough to operate the switch solenoids are run. Each motion of the unloaders is provided with a geared automatic emergency cutout. If the operator fails to open his master switch at the proper moment the emergency switch will automatically govern the controller and slow down and stop the motor before any damage is done to the machine. The main controllers are located as near to their respective motors as possible, so that the heavy wires carrying large currents are not switches so depend upon each other that they must close in rotation. One terminal of the operating solenoid of each switch is connected to such a point on the resistance that the current taken upon the closing of the preceding switch must fall to a certain value before the next switch can close. This means that the motor must come up to the speed corresponding to each accelerating switch before the following switch can close. This results in smooth acceleration in the shortest possible time, consistent with safety to the motor and driving mechanism.

At the right of the illustration it will be noticed that there are a number of pairs of switches which are joined together by hinged levers. These switches are used for reversing. The function of the hinged levers is to prevent the opening switches from closing when the closing switches are shut and vice versa. Another switch

closes when the operator throws his master switch to the center or off position. This establishes the connections of the motor as a generator and the momentum of the machinery driving the motor generates current, which is dissipated as heat by the resistance and serves as a brake, assisting in bringing the motor to a quick stop. All the controllers have this feature. In Fig. 2 are shown controllers for operating the bucket-closing motor. Fig. 3 shows the solenoid switch for controlling the motor rotating the bucket in the hold of the vessel.

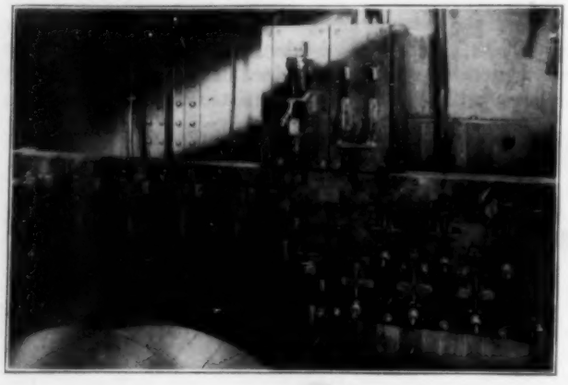


FIG. 2.—MAGNETIC SWITCH CONTROLLERS FOR BUCKET-CLOSING MECHANISM, HULETT ORE UNLOADERS, LORAIN, OHIO.

The bucket is dumped into a car which runs up an incline to the ore pile. This car is driven by a motor located in a house underneath the walking beam of the unloader. The control board for operating this motor is shown in Fig. 6. Fig. 4 illustrates the operator's station in the motor house. The master switch is the small half round box in the center, with the single lever projecting from it. The two levers working on quadrants are clutch levers, while below the master switch is a foot lever for

FIG. 3.—SOLENOID SWITCH FOR BUCKET-ROTATING MOTOR, HULETT ORE UNLOADERS, LORAIN, OHIO.

operating a brake on the car. Fig. 6 shows the emergency cutout on the car motor. This is mounted opposite the master controller and governs its action if the operator fails in his duty.

The emergency cut-out switch governing the motion of the entire machine in and out of the boat is located on the framework of the unloader, near one of the driving wheels. It is driven by means of a chain drive from the axle.

The resistances for the bucket-hoist, bucket-closing, and

FIG. 4.—OPERATOR'S STATION, HULETT ORE UNLOADERS, LORAIN, OHIO.

bucket-rotating motors are placed in the house with the controllers. This house is divided into two parts by a partition, the controllers being in one part and the re-

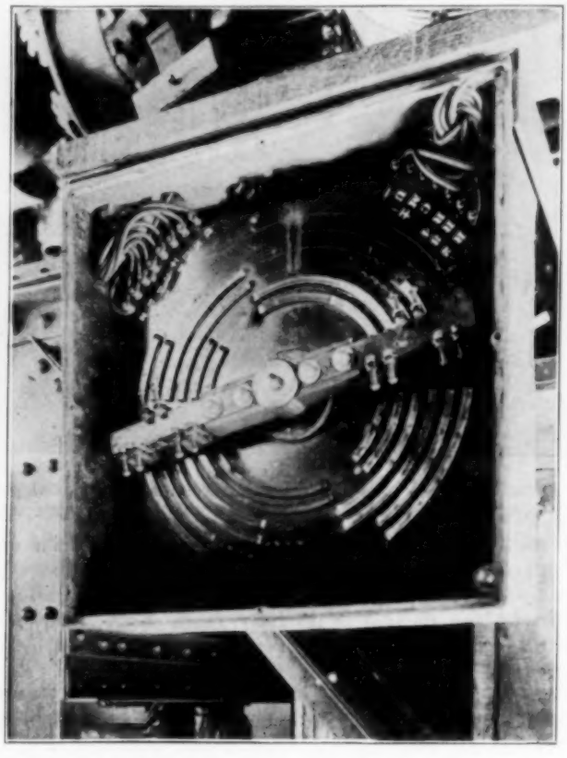


FIG. 5.—EMERGENCY CUT-OUT SWITCH FOR CAR MOTOR, HULETT ORE UNLOADERS, LORAIN, OHIO.

sistances in the other. The resistances for the car motor are placed directly behind the control board panels.

All movements on the unloaders are provided with magnetic cushion type solenoid brakes, also manufactured by the Electric Controller & Supply Co.

IS MONOPOLY POSSIBLE?

CONCENTRATION IN LAKE SUPERIOR IRON ORE PRODUCTION DISCUSSED.

Advantages of Great Capital—Value of the Hill Holdings—Farsighted Policy of the United States Steel Corporation.

"Combination in the Mining Industry: A Study of Concentration in Lake Superior Iron Ore Production," is the title of the latest volume in studies in history, economics and public law edited by the faculty of political science of Columbia University. The author is Henry Raymond Mussey, Ph.D., who discusses exhaustively the theory of concentration, the period of small capital in the Lake Superior region, the period of moderate capital, the period of large capital, and the present situation. In the last chapter, he states that the advantages of the great company are: The use of expensive machinery; large output; extension of the open-pit method; the ability to furnish all kinds of ore; the ability to purchase new mines; the application of scientific methods; the new view of the ore deposits; improvements in ore-carrying methods and cheapening of transportation through integration.

From the last chapter we make the following extracts:

The Present and Future.

Let us glance in conclusion at the position of the greatest of all the steel companies and see if we can form any estimate as to the probabilities of the immediate future. It should be remembered that the issue involved is not merely the control of the mines, but of the iron and steel industry as well; for as Mr. James J. Hill has well remarked:

> The growth of our enormous iron and steel industries, which are pointed out as the result of our protective tariff, can be more surely traced to our magnificant reserves in the iron mines of Michigan and Minnesota than to any other source. To-day, if these mines were closed our superiority in the iron and steel trades of the world would be gone forever.

Despite the increase of Southern competition and the encroachments of the basic Bessemer and open-hearth processes on the older Bessemer method, it still remains true that the immediate future of the American iron trade rests in the hands of those who hold possession of the the pure ores of Lake Superior. Centralization in mining means in no small degree centralization in manufacture. Hence the importance of a correct estimate of the influences now at work in the mining industry.

The apprehensions of those who feared immediate

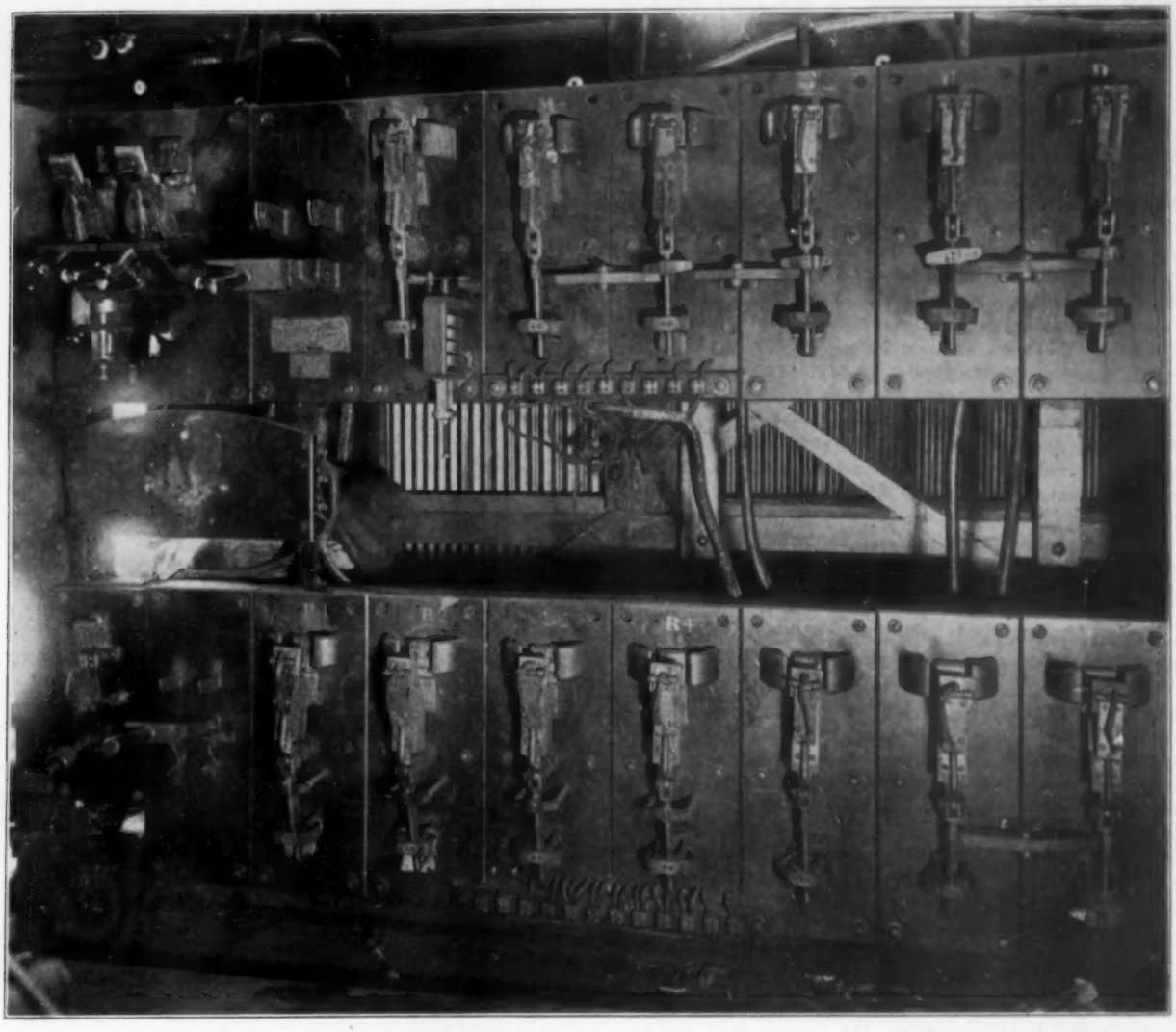


FIG. 6.—MAGNETIC SWITCH CONTROLLERS FOR CAR MOTOR, HULETT ORE UNLOADERS, LORAIN, OHIO.

monopoly with the formation of the Steel Corporation may be dismissed as groundless. Whatever the proportion which its ore reserves bear to the total supply still buried in the Lake Superior region (a proportion which no one knows with any approach to accuracy), it must be remembered that metallurgical progress and the exhaustion of the richer deposits are constantly making marketable leaner and more phosphoric ores and widening by so much the supply to be monopolized.

Whatever may be the facts with respect to reserves, then, we know that the trust in 1901 made 61.6 percent of all the Lake Superior shipments; in 1902, 60.4 percent; in 1903, 58.6 percent; in 1904, 51.1 percent. This slight decline in its percentage during the first three years of its existence and the remarkable falling off of last year are capable of two interpretations.

Competition for the Corporation.

First, we may argue that just as in the case of so many would-be monopolies, new competition has arisen which the corporation was unable to control. There is a degree of truth in this view of the matter. The high prices of the four years immediately preceding 1904 stimulated exploration and development to the last degree, and the independents did not hesitate to bid up properties which the trust would doubtless have been glad to secure. If the financial demands imposed upon the corporation by its over-capitalization had not been so great, it would probably have been even more aggressive than it has been in getting hold of new properties. There can be no doubt that it will push forward on the path of monopolization as far and as fast as proves economically practicable, for such is the dictate of sound business policy. To control the Lake Superior mines is to dominate the immediate future of the American iron industry. The decline in the trust's proportion of shipments might accordingly be taken to indicate that it is losing its grip on the mining situation.

Such an interpretation of the facts lacks much of being a full explanation. The falling off in trust shipments may much more reasonably be attributed to far-sighted action on the part of the managers of the corporation's affairs. With ore selling at from $4 to $6 during 1901-2-3, they wisely pushed their mines and got out a large product for which they found ready sale at a good profit, either in the form of ore or of finished goods. In 1904, with ore $1 to $1.50 lower than during the preceding year, and half the season's shipments bringing no profit, they wisely cut production and shipments to their lowest limits, preferring to let their competitors exhaust their reserves, if they wished, by selling at a loss, while they themselves held back against the day of better things.

Short-sighted Policy.

By contrast, the action of certain other large interests appear amazingly short-sighted. The rich new Stevenson mine is reported to be already oversold, and its ore has in any event been thrown on the market with reckless disregard of the effect on prices. Prudence would dictate that where a vast deposit can be cheaply worked and so sold with a large profit when prices are only fair, the product should be held back in bad seasons, in the assurance that it can be sold in good years for an additional profit more than enough to make up for the delay. Of course it requires a strong company, which can afford to wait for profits, to carry out such a policy.

In managing mines, a company has always to remember the nature of its ore reserve as a capital asset. Once gone, it is gone forever. Therefore the aim of the company should be to secure from it the largest possible return, holding in view the entire life of the deposit. This consideration becomes all the more important as the limits of available supply come more clearly into view, and the possibility of ultimate monopoly begins to be seriously discussed. The argument holds good for the steel company no less than for the independent mining concern. It is an outcome of that long-time view of business affairs which is coming to supersede the reckless hand-to-mouth policy of earlier days.

In this view, the wisdom of the Steel Corporation is evident in declining to make a spectacular showing by attempts to increase its proportion of the total output when there is a greater profit in allowing the proportion to decline temporarily, with a more than compensatory increase in probable profits later.

It is possible, of course, to neglect the present and to give too exclusive attention to the future. If the Steel Corporation is looking to an advantage to be derived twenty years hence from a monopolistic control of Bessemer ores, it may well find itself cheated by other processes displacing the Bessemer. But it is unnecessary to put any such distant interpretation on the policy of the corporation. Its unwillingness to exhaust a valuable asset like its ore reserve, except at prices which show a fair profit, is to be commended, and will do something to help in bringing about that steadiness of prices which it desires.

Price Policy of the Corporation.

The price policy of the Steel Corporation is of course complicated by the fact that the cost of its ore is little affected by changes in ore prices, while some of its competitors find their cost of manufacture seriously raised by higher prices for raw material. Hence the corporation works for high ore prices, and the merchant ore companies, curiously enough, with a view to protecting their customers strive to keep values down. The situation is an abnormal one and can only result, apparently, in clearing the field entirely of independent ore firms. Even when that is accomplished the ownership of the Mesabi railroads and such other ore carriers as may be acquired would make it advantageous for the corporation to keep up the cost and price of ore by maintaining high railroad rates. The effect on companies which have not an independent ore supply or railroad connection can be imagined. The economical possibility of complete equipment through having ore reserves sufficient to warrant the building of independent railroads, if necessary to keep down rates, has been pointed out in an earlier chapter.

The Hill Ore Holdings.

The real importance of the final disposition of the Hill ore holdings now becomes apparent. Many mistaken ideas are current concerning the possibility of their sale to the Steel Corporation, and it is supposed that such a transfer of ownership would give the trust almost a complete monopoly of the Mesabi ore-bearing lands. As a matter of fact a great many of the Hill mines are already under lease to independent steel companies on such terms that there could be no possible gain to the trust, from the point of view of ore supply for its furnaces, in buying up the fee or the underlying leases. What such a transaction might accomplish is the transfer of the Eastern Minnesota railroad to the corporation, for Mr. Hill would doubtless insist on its being the whole bargain or none; and the Steel Corporation would unquestionably be equally anxious to get the road, whose acquisition would give it a monopoly of rail transportation from the Mesabi, while its control of undeveloped ore lands and the existing tonnage contracts of the developed mines with the railroads make it improbable that it would ever be profitable to build a competing line. Give to one concern a monopoly of the transportation of the product of that range

which dominates the whole Lake Superior iron-mining business, and the gain that would accrue to it is patent. It would be even greater than the advantage possessed by the Minnesota and Consolidated companies through their ownership of the railroads in the early days, because now there would be little fear of the building of new roads to keep down rates. Existing contracts, of course, must be taken into account, yet the benefit to the trust of buying up the Hill properties, even though it should not make great gains thereby in regard to supplies of ore, is large enough to warrant it in paying a generous price.

Hill's High Price.

Why does not the corporation buy out Mr. Hill, if that action would give it such a commanding position? The answer is simple. Mr. Hill's price is too high and the corporation cannot afford to furnish the money required. The sum which it can put into mines and mining is strictly limited by practical business requirements, and while it might possibly in case of necessity command the funds to buy these properties, its present industrial and financial position does not yet warrant such action. To put the matter once more in terms of our theory, the capital at its disposal has not yet grown up to the measure of the demand made by the whole region. Sooner or later it may be forced to purchase the Hill interests in self-defense.

Assume that a combination of such companies as the Lackawanna, Jones and Laughlins, the Republic Iron and Steel, and a dozen others that could be mentioned, should take over the Hill properties. The Steel Corporation, loaded down with a heavy burden of securities, would be forced into competition with a group of concerns over which it had but slight advantages. Whatever monopoly it has in the ownership of the Connellsville coal field it is bound to lose with the growth of the by-product coke process. So far as equipment goes, the other companies are no whit behind the Corporation. As to location, many of their plants are even better situated than most of the trust mills. As for transportation, they have their own steamships and the supposed purchase would give them their own railroad. The only thing the trust could do to save itself from a destructive competition would be to forestall its rivals in getting possession of the Hill lands and railroad. That it would be glad to do so is unquestionable; that it would be happy to monopolize the lake region is equally certain; if it is ever able to accomplish this result it will be because its capital has grown up to the point where it can adequately finance the whole Lake Superior mining industry.

Steel Making on Lake Erie.

It is extremely dangerous to hazard any guess as to the future, but it seems safe to say that the importance of the Lake Superior ore supply will increase rather than diminish in the immediate future. The westward movement of population and industry is steadily bringing the furnaces nearer to the mines, and the shores of Lake Erie furnish the best location in the north for steel-making to-day. Without question the best policy for any concern which intends to make steel during the next twenty-five years is to intrench itself firmly in the Lake Superior region. It is equally good policy for any company which may be able to do so to monopolize that region, even at a rather high cost.

The Steel Corporation could bring the independent ore companies to their knees fast enough if only rival steel companies would give it a free hand, but the independent steel makers, as well as the trust, have planted their feet on the ground and seem quite as ready as their great rival for a fight to a finish.

We should not be deceived by appearances, however. It is quite inconceivable that a destructive warfare between a small number of powerful steel companies should long continue. The moment the number of competitors is reduced so as to become manageable, combination is possible, and with that possibility in the background, fierce competition is not likely long to continue. The formation of the Steel Corporation itself is a case in point. Further combination among northern steel makers does not seem to be immediately in prospect, yet there is no serious reason for believing that it will not occur. Such combination would carry yet further the concentration of control in the mining industry, and there is no inherent reason why a monopoly of the Lake Superior iron mines should not be achieved to all intents and purposes as absolute as is the monopoly of the anthracite coal fields to-day. Then the only restraint on the northern iron makers would be the competition of Southern and Eastern manufacturers who could derive their ores from other sources than Lake Superior.

To predict such a consummation would be to exceed the bounds of scientific caution, but it does not require a prophet to discern the direction in which things are moving. As the great companies, and particularly the greatest of all, grow stronger, they will be able to offer greater and greater inducements to the small ore-holders, the profits of independent operation will become more precarious, and thus the process of concentration will steadily proceed. Meantime combination among the steel companies is likely to continue in one form or another, and thus the tangled skein of mine ownership will be snarled yet tighter. The single corporation or group of corporations may come at last to have all the capital needed to obtain all the mines and work them economically.

One Great Consolidation?

To discuss the possibilities of such a situation would be idle at present. It would certainly extend into the domain of what has been held to be purely private industry certain ideas which have already begun to be entertained by the student and the statesman when considering public franchise enterprises. It might do something to shake our confidence in competition as a sufficient regulator of industrial relations in the industries which depend upon mines as the source of their raw material.

If the Lake Superior mines can be monopolized, why not those of the south and west as well? Given a Northern combination, a Southern one, and a Western one, why should they make war upon one another? Why should they not take the final step of consolidation? Monopoly as yet seems far away, but its outlines loom large before us. If ever it comes, it will be based, not upon any precarious foundation of unfair traffic agreements or illegitimate devices of traders, but primarily upon the sole ownership of the marvelous Lake Superior ore deposits, upon the possession of the great equipment required to work the mines cheaply, of the railroads and steamships needed to bring ore and fuel together at the furnace, and of the enormous plant necessary to convert the ore at lowest cost into the machinery upon which depends so largely our further progress in wealth and material comfort.

A new cafe car, the handsomest ever built, has been put in Erie service, running on the short line between Cleveland and Pittsburg. The car was a part of the Pullman exhibit at the St. Louis fair and cost $27,000. It is half dining room and half lounging room on the plan made popular already by Erie in its fast trains between New York and Cleveland. The car is finished in dark oak in rathskellar style. It is lighted and cooled by electricity, and these fixtures are particularly handsome, being constructed of heavy green bronze.

Production of Coke in United States in 1904.

The statistics of the manufacture of coke compiled by Edward W. Parker, of the United States Geological Survey, show that, including the production of coke from by-product retort ovens, which in 1904 amounted to 2,608,229 short tons, the total output of the coke ovens of the United States last year was 23,621,520 short tons, against 25,274,281 short tons in 1903. The decrease in 1904 as compared with the preceding year was 1,652,761 short tons, or 6.54 percent. The total value of the product declined in much greater proportion from $66,498,664 in 1903 to $46,026,183, a decrease of $20,472,481, or 31 percent. The decline in production was a natural one, due to a slump in the iron trade during the summer months and which was in turn caused for the most part by the unsettled conditions which usually attend a presidential campaign. And while these conditions also affected prices, the great difference between the values of the production in 1904 and 1903 was due to the abnormally high prices which prevailed in the early part of 1903, when, because of the fuel famine induced by the anthracite strike of the preceding year, manufacturers of coke were able to obtain almost any figure they might demand. The average price for all the coke made and sold in 1904 was only 9 cents less than that in 1901, and was higher than that of any year from 1893 to 1899, inclusive.

Manufacture of coke in the United States, by States and Territories, in 1904.

State or Territory.	Establishments.	Ovens. Built.	Ovens. Building.	Coal used.	Yield of coal in coke.	Coke produced.	Total value of coke.	Value of coke per ton.
				Short tons.	*Per ct.*	*Short tons.*		
Alabama	42	9,059	449	3,996,578	58.6	2,340,219	$5,716,413	$2.443
Colorado	15	3,419	0	1,376,354	57.3	789,060	2,590,251	3.28
Georgia	2	500	0	132,270	57.3	75,812	212,697	2.806
Illinois	5	155	120	8,131	54.6	4,439	9,923	2.24
Indiana	1	38	0	0	0	0	0	0
Indian Territory	5	286	0	98,847	45.3	44,808	209,165	4.67
Kansas	6	90	0	14,525	65	9,469	23,485	2.48
Kentucky	7	499	0	140,139	45.7	64,112	138,226	2.15
Missouri	3	9	0	3,815	64	2,446	6,115	2.50
Montana	4	329	0	78,903	53	41,497	280,745	6.77
Ohio	8	559	14	165,487	66	109,284	337,606	3.09
Pennsylvania	217	42,165	1,021	22,432,064	66.2	14,861,064	25,027,462	1.684
Tennessee	17	2,436	190	718,181	52.8	379,240	905,540	2.388
Utah[b]	2	504	0					
Virginia	16	4,345	68	1,636,905	67.3	1,101,716	1,772,717	1.609
Washington	6	236	0	76,993	59	45,432	207,357	4.56
West Virginia	137	16,929	1,319	3,843,336	64.4	2,263,086	3,757,850	1.646
Maryland	1	200	0					
Massachusetts	1	400	0					
Michigan	2	135	0					
Minnesota	1	80	0					
New Jersey	1	100	0	2,046,340	71.8	1,469,845	4,830,621	3.286
New Mexico	2	134	0					
New York	3	332	658					
Wisconsin	2	208	0					
Wyoming	1	74	0					
Total	506	[c]83,490	[d]4,430	38,468,270	64.8	23,621,520	46,026,183	1.948

[a] Includes the production of Utah.
[b] Included with Colorado.
[c] Includes 895 Semet-Solvay, 1,756 Otto-Hoffman and Schniewind, 56 Newton-Chambers, 66 Wilcox, and 98 Rothberg ovens.
[d] Includes 180 Semet-Solvay, 658 Otto-Hoffman, and 14 Wilcox ovens.

In 1903 the value of the coal used in the manufacture of coke was $42,447,449, while the value of the coke produced from it was $66,498,664, making a difference of $24,051,215 as representing the profits on the coking operations, less the cost of producing and selling. In 1904 the value of the coal used was $37,133,832, and the value of the coke produced was $46,026,183, a difference of $8,892,351.

The year 1904 opened up with every prospect for a good year's business. The last two months of the preceding year had witnessed a notable falling off in demand and thousands of ovens had been put out of blast, but early in January conditions exhibited a decided improvement, and, while prices did not show any material advance, idle ovens were fired and production steadily increased, the principal exception to an otherwise satisfactory trade being complaints of insufficient car supply. These conditions continued until May, when, following a boom in demand and production the preceding month, the supply caught up with the demand and prices began to sag. By June the slump in the iron trade, which had begun in May, was decidedly in evidence, and Connellsville coke, which had been quoted at from $1.60 to $1.75 per short ton, dropped to as low as $1.40. June, July, and August were marked by exceptional dullness throughout the coking regions, but by the first of September conditions began to improve, and from then until the end of the year the trade was in excellent shape. Prices began to advance in October, and in December Connellsville furnace coke, which had sold for $1.40 in June and July, was quoted as high as $2.45. Many operators consider that the year 1904 was disappointing and unsatisfactory, but, considering the fact that it was a presidential election year, there seems to be comparatively little cause for complaint. Furthermore, at the time of writing this report, the indications are that the current year will make the record for coke production with prices considerably above the average, though they may not and should not reach the high levels of 1902 and 1903.

Average value per short ton, at the ovens, of the coke made in the United States, 1880–1904.

Year.	Value.	Year.	Value.	Year.	Value.
1880	$1.99	1889	$1.62	1897	$1.663
1881	1.85	1890	2.02	1898	1.594
1882	1.77	1891	1.97	1899	1.76
1883	1.49	1892	1.96	1900	2.31
1884	1.49	1893	1.74	1901	2.099
1885	1.49	1894	1.34	1902	2.49
1886	1.63	1895	1.44	1903	2.63
1887	2.01	1896	1.827	1904	1.948
1888	1.46				

In considering the total value and average price for the entire coke product of the United States as presented in this report, it must be remembered that in many cases the values are arbitrarily fixed. A number of the larger manufacturers operate blast furnaces in connection with their coal-mining and coke-making business. In such cases the coke product is sometimes charged against the furnace departments at cost, and sometimes at a figure based upon the cost of coal mining and coke making, plus a percentage of profit on these operations. The value is not fixed by the market price. In other cases the value is estimated upon the average prices for coke of a similar quality produced and sold in the immediate vicinity. The H. C. Frick Coke Co., of Pittsburg, the largest single producer of coke in the United States, which retired from the general market in 1902 with the purpose of disposing of its entire production to the United States Steel Corporation, resumed production for the outside market in the latter part of 1903, and continued to do so during 1904.

Number of coke ovens building in the United States at the close of each year, 1880–1904.

Year.	Ovens.	Year.	Ovens.	Year.	Ovens.
1880	1,150	1889	2,115	1897	575
1881	1,005	1890	1,375	1898	1,048
1882	712	1891	911	1899	4,037
1883	497	1892	1,806	1900	5,804
1884	612	1893	717	1901	5,205
1885	432	1894	591	1902	8,758
1886	4,151	1895	638	1903	6,175
1887	3,594	1896	385	1904	4,430
1888	2,587				

Stimulated by the active demand for coke which prevailed in 1902, new construction was energetically carried forward, and during 1903 over 10,000 new ovens were added to those already built. At the close of 1902 the

total number of coke ovens in the United States was 69,069. At the close of 1903 the number had increased to 79,334, a gain of 10,265. On Dec. 31, 1904, the number of ovens had increased to 83,499, a gain of 4,165 over 1903. The number of ovens idle in 1903 was 1,999, leaving a total of 77,335, which produced 25,274,281 tons of coke, or an average of 326.8 tons per oven. In 1904, out of 83,499 ovens, 6,478 were idle, leaving 77,021 which produced 23,621,520 tons of coke or 306.7 tons per oven.

The total number of 77,021 active ovens in 1904 included 2,910 by-product ovens (an increase from 1,956 in 1903) which produced 2,608,229 tons of coke (compared with 1,882,394 tons in 1903). From this it is seen that the average production of the by-product ovens in 1904 was 896 tons each. Deducting the by-product ovens, and the production of by-product coke from the total active ovens and total production in 1904 it appears that there were 74,111 beehive ovens which produced 21,013,291 tons of coke, or 283.5 tons per oven. In 1903 the 1,956 retort ovens produced 1,882,394 tons, an average of 962.4 tons per oven, while 75,379 beehive ovens yielded 23,391,887 tons, or an average of 310.3 tons each. The smaller average production by the by-product ovens in 1904 is due to the large number of new ovens put in blast during that year, but which were not in operation the early part of the year. A plant of Semet-Solvay ovens at Milwaukee, Wis., for instance, was fired up May 1, and an Otto-Hoffman plant at Duluth, Minn., was not put in blast until August.

There were under construction at the close of 1904 4,430 new ovens of which 832, or 18.8 percent were of the retort or by-product type.

Quantity of coke produced in the United States, 1899-1904, by States and Territories.

[Short tons.]

State or Territory.	1899.	1900.	1901.	1902.	1903.	1904.
Alabama	1,787,809	2,110,627	2,148,911	2,552,246	2,693,497	2,340,219
Colorado[a]	530,424	618,755	671,303	1,003,393	1,053,849	789,060
Georgia	90,907	73,928	54,590	82,064	85,546	75,812
Indian Territory	24,339	38,141	37,374	49,441	69,810	44,808
Kansas	14,476	5,945	7,138	20,902	14,194	9,460
Kentucky	81,005	95,522	100,295	136,979	115,362	64,112
Missouri	2,980	2,087	4,749	5,789	1,829	2,446
Montana	56,376	54,731	57,004	53,463	45,107	41,497
New Mexico	44,134	44,774	41,643	23,296	11,060	18,673
Ohio	83,878	72,116	108,774	146,080	143,913	109,284
Pennsylvania	[b]13,577,873	13,257,286	14,356,917	16,497,910	15,680,932	14,861,064
Tennessee	435,398	475,432	494,017	560,006	546,875	379,240
Utah	(a)	(a)	(a)	(a)	(a)	(a)
Virginia	618,707	695,156	907,130	1,124,572	1,176,499	1,101,736
Washington	30,372	33,397	49,197	60,365	45,623	45,632
West Virginia	2,278,577	2,358,499	2,283,700	2,546,605	2,707,818	2,283,086
Illinois	2,370					
Indiana						
Maryland						
Massachusetts	(c)					
Michigan		806,739	861,191	998,869	932,420	1,405,611
New Jersey						
New York	(c)					
Wisconsin	33,437					
Wyoming	15,630					
Total	19,668,569	20,533,348	21,795,893	25,401,730	25,274,281	23,621,520

[a] Colorado includes Utah.
[b] Includes production of New York and Massachusetts.
[c] Included with Pennsylvania.

The number of completed retort ovens has increased from 1,165 in 1901 to 1,663 in 1902, to 1,956 in 1903 and to 2,910 in 1904. The output from retort ovens has increased from 1,179,900 tons in 1901 to 1,403,588 tons in 1902 to 1,882,394 tons in 1903, and to 2,608,229 tons in 1904. In 1902, 5.5 percent of the total output was from by-product ovens; in 1903 the by-product coke was 7.4 percent of the total; in 1904 by-product coke made up 11 percent of the total output.

Counting each bank of ovens as a separate establishment, the returns for 1904 show a total of 506 establishments, as compared with 500 in 1903. Eighty-two establishments were idle throughout 1904 as compared with 41 idle plants in 1903. There were also 10 new establishments, having a total of 1,265 ovens, which were not completed and put in blast at the close of 1904.

The details of the production of coke in 1904 are presented, by states and territories, in the tables.

Of the 26 states and territories in which coke was produced in 1904, there were only three, whose production is reported separately, that exhibited an increase of output as compared with 1903. The combined production of Indiana, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, Wisconsin, and Wyoming, 95 percent of which was from by-product retort ovens, showed an increase of 521,670 short tons, while the total increases in the other three states amounted to less than 10,000 short tons. The 13 states, reported separately, production since 1880, are shown. During the twenty-five whose production in 1904 was less than in 1903, sustained a total loss of 2,184,174 short tons, the net decrease in 1904 amounting to 1,652,761 short tons, or 6.54 percent. The production of by-product coke increased from 1,882,394 short tons in 1903 to 2,608,229 tons, a gain of 725,835 tons, or 38.6 percent. The production of beehive coke decreased from 23,391,887 short tons in 1903 to 21,013,291 tons in 1904, a loss of 2,378,596 tons, or a little over 10 percent.

The most notable decreases in production were among the three most important producing states. Pennsylvania's production decreased 789,868 tons, West Virginia's 424,732 tons, and Alabama's 353,278 tons. Colorado, fifth in rank in production, was fourth in the amount of decrease in 1904, with a loss of 264,780 tons, followed by Tennessee, with a decrease of 167,635 tons. All other decreases were less than 100,000 tons.

The increases and decreases in the several states during 1904, as compared with 1903, are shown in the following table:

Increases and decreases in coke production, by States, in 1904, as compared with 1903.

[Short tons.]

State or Territory.	Total quantity.		Increase.		Decrease.	
	1903.	1904.	Quantity.	Per cent.	Quantity.	Per cent.
Alabama	2,693,497	2,340,219			353,278	13.11
Colorado[a]	1,053,849	789,060			264,780	25.12
Georgia	85,546	75,812			9,734	11.38
Illinois	2,926	4,439	1,513	51.7		
Indian Territory	69,810	44,808			5,010	10.06
Kansas	14,194	9,460			4,734	33.35
Kentucky	115,362	64,112			51,250	44.42
Missouri	1,829	2,446	607	33.0		
Montana	45,107	41,497			3,610	8.00
New Mexico	11,050	18,673	7,623	69.0		
Ohio	143,913	109,284			34,629	24.06
Pennsylvania	15,650,932	14,861,064			789,868	5.05
Tennessee	546,875	379,240			167,635	30.65
Virginia	1,176,499	1,101,736			74,723	6.35
Washington	45,623	45,632			191	.004
West Virginia	2,707,818	2,283,086			424,732	15.68
Indiana						
Maryland						
Massachusetts						
Michigan						
Minnesota	929,502	1,451,172	521,670	56.12		
New Jersey						
New York						
Wisconsin						
Wyoming						
Total	25,274,281	23,621,520			1,652,761	6.54

[a] Includes Utah.

Production in Previous Years.

The earliest record of coke production in the United States is that contained in the census report for 1880. In that year the total production of coke amounted to 3,338,300 short tons. Five years prior to that date, according to statistics compiled by the American Iron & Steel Association, the use of coke in iron furnaces exceeded that of anthracite coal. The same authority states that prior to 1855 most of the iron made in this country was made with charcoal. In that year anthracite took the lead and maintained it until passed by coke in 1875. Six

years earlier coke had taken the lead over charcoal. Now very little iron is made with anthracite, and charcoal is used only for making special brands of pig iron. A comprehensive idea of the growth of the coking industry in the United States is obtained by dividing the history of the last twenty years into five-year periods. The average production for the three years, 1880 to 1882, was about 4,000,000 tons a year. In the five years from 1883 to 1887, inclusive, the average production amounted to 5,980,459 short tons. The average for the next five years, from 1888 to 1892, was nearly double that of the preceding five years, amounting to 10,533,918 tons. This period was followed by the panic years of 1893, 1894, and 1895, and the coke production showed only a small increase in the next five years, averaging during that time 11,418,536 tons per year. The return of prosperous conditions which began in 1896 has shown no decided setback since that time, and the production of coke during the five years from 1898 to 1902, inclusive, obtained an average of 20,689,347 tons, and exceeded for the first time a total of 25,000,000 tons in 1902. The average production in 1903 and 1904 was 24,447,900 short tons, an increase of 18 percent over the average for the five years from 1898 to 1902, inclusive.

The statistics of the production of coke in each state and territory for the last six years, and the total annual years covered by these reports there have been seven in which the production decreased as compared with the preceding year. The most notable decreases were those shown in the production of 1893 and 1894, and were due to the panic and depression which made those years memorable in our recent industrial history. The temporary boom of 1895 was followed by another period of depression in 1896, which was also reflected in a decreased coke production. The slight decrease of 1903 was due to a natural reaction from the abnormal production of the preceding year, aided by the unsettled conditions of a presidential year, and a slump in the iron trade which occurred during the summer months.

Number of Coke Works in the United States.

The total number of establishments manufacturing coke in the United States for each year since 1880 is shown in the table, together with those reported for the census years ending June 30, 1850, 1860, 1870, and 1880.

Number of coke ovens in the United States on December 31 of each year, 1880–1904.

Year.	Ovens.	Year.	Ovens.	Year.	Ovens.
1880	12,372	1889	34,165	1897	47,668
1881	14,119	1890	37,150	1898	49,393
1882	16,356	1891	40,057	1899	49,693
1883	18,304	1892	42,002	1900	58,484
1884	19,507	1893	44,201	1901	63,951
1885	20,116	1894	44,772	1902	69,069
1886	22,597	1895	45,565	1903	79,334
1887	26,001	1896	46,944	1904	83,499
1888	30,059				

A statement of the number of ovens in course of construction at the end of each year since 1880 is shown in the table. It is not intended to show by this the increase in the number of ovens from year to year, nor does it include the new ovens completed during any one year. It exhibits merely the condition of the industry as represented by plants under construction at the close of each year.

Volume of Coke Produced.

In the table is shown the total value of the coke product of the United States each year since 1880. The effects on the coke trade of the fuel famine caused by the strike in the anthracite region of Pennsylvania are shown by the greatly increased value of the coke product in 1902 and 1903. The amount of coke produced in the United States in 1903 exceeded that of 1901, two years before, by 3,478,398 short tons, or 16 percent, while the value showed a gain of $22,052,741, or nearly 50 percent. The return to more normal conditions in 1904 is exhibited by a decrease of 1,652,761 tons, or 6.54 percent, in the quantity of coke produced, and a decline of $20,472,481 in the value. The average price obtained for the coke sold in 1904 was the lowest in the last five years, but was higher than for the seven years preceding 1900.

The tables show the value of the coke produced in each state and territory during the last six years, and the value of the total product for each year since 1880.

Statistics of the manufacture of coke in the United States, 1880–1904.

Year.	Establishments.	Ovens. Built.	Ovens. Building.	Coal used.	Coke produced.	Total value of coke at ovens.	Value of coke at ovens, per ton.	Yield of coal in coke.
				Short tons.	*Short tons.*			*Per ct.*
1880	186	12,372	1,159	5,237,741	3,338,300	$6,631,267	$1.99	63
1881	197	14,119	1,005	6,546,662	4,113,760	7,725,175	1.88	63
1882	215	16,356	712	7,577,648	4,793,321	8,462,167	1.77	63
1883	231	18,304	407	8,516,670	5,464,721	8,121,607	1.49	64
1884	250	19,507	812	7,951,974	4,873,805	7,242,878	1.49	61
1885	233	20,116	432	8,071,126	5,106,696	7,629,118	1.49	63
1886	222	22,597	4,154	10,688,972	6,845,369	11,153,366	1.63	64
1887	270	26,001	3,584	11,859,752	7,611,705	15,321,116	2.01	64
1888	261	30,059	2,587	12,945,350	8,540,030	12,445,983	1.46	66
1889	252	34,165	2,115	15,960,973	10,258,022	16,630,301	1.62	64
1890	253	37,158	1,547	18,005,209	11,508,021	23,215,302	2.02	64
1891	243	40,245	911	16,344,540	10,352,688	20,323,216	1.97	63
1892	261	42,002	1,893	18,813,337	12,010,829	23,536,141	1.96	64
1893	258	44,201	717	14,917,146	9,477,580	16,523,714	1.74	63.5
1894	280	44,772	891	14,368,740	9,203,632	12,328,806	1.34	64
1895	265	45,565	638	20,848,323	13,333,714	19,234,319	1.44	64
1896	341	46,944	383	18,694,422	11,788,773	21,660,729	1.837	62
1897	336	47,668	375	20,397,319	13,288,984	22,102,514	1.663	63.5
1898	341	48,383	1,048	25,249,570	16,047,209	25,586,699	1.594	63.6
1899	343	49,693	4,037	30,219,343	19,668,569	34,670,417	1.76	65.1
1900	396	58,484	5,804	32,113,543	20,553,348	47,443,331	2.31	63.9
1901	423	63,951	5,395	34,207,965	21,795,883	44,445,923	2.039	63.7
1902	496	69,069	8,758	39,604,007	25,401,730	63,339,167	2.49	64.1
1903	500	79,334	6,175	39,425,525	25,274,281	66,498,664	2.63	64.1
1904	506	83,499	4,430	36,468,270	23,621,520	46,026,183	1.948	64.8

Coke Making in By-Product Ovens.

The statistics relating to the manufacture of coke in by-product ovens show that the total number of this type of ovens completed and in blast increased from 1,663 in 1902 to 1,956 in 1903 and 2,910 in 1904, and that the production of by-product coke increased from 1,882,394 short tons in 1903 to 2,608,229 short tons in 1904, a gain of 725,835 tons, or 38.6 percent, although the total production of coke for the year exhibited a decrease of 1,652,761 tons. There were under construction at the close of 1904 832 new by-product ovens.

Quantity of coke produced in the United States, 1880–1904.

[Short tons.]

Year.	Quantity.	Year.	Quantity.	Year.	Quantity.
1880	3,338,300	1889	10,258,022	1897	13,288,984
1881	4,113,760	1890	11,508,021	1898	16,047,209
1882	4,793,321	1891	10,352,688	1899	19,668,569
1883	5,464,721	1892	12,010,829	1900	20,553,348
1884	4,873,805	1893	9,477,580	1901	21,795,883
1885	5,106,696	1894	9,203,632	1902	25,401,730
1886	6,845,369	1895	13,333,714	1903	25,274,281
1887	7,611,705	1896	11,788,773	1904	23,621,520
1888	8,540,030				

The average yearly production of the 2,910 by-product ovens in operation during 1904 was 896 short tons of coke. In 1903 the average production per oven was 962.4 tons and in 1902 it was 844 tons. The average yearly production of the beehive ovens in 1904 was 283.5 tons against 310.3 tons in 1903.

In order to produce the 2,608,229 tons of coke in 1904 there were used in the by-product ovens 3,572,949 short tons of coal, showing a yield in coke of 73 percent, a much larger yield than can be obtained from beehive ovens. As previously shown, the average yield of coal in coke for all the United States (including the output of by-product ovens) in 1904 was 64.8 percent, and this is probably higher than the results actually obtained.

ONE OF THE WORLD'S GREATEST ACHIEVEMENTS.

THE BUILDING OF THE SOO CANAL, WAS CELEBRATED

In the Presence of Thousands of Enthusiastic Americans and Canadians—Eminent Speakers, Pleasant Incidents, and Other Features.

It is very common for a lecturer to illustrate by stereoptican images the places that he has visited, the scenes that he has witnessed or the things that he has done; but how rare it is for a speaker to illustrate his lecture with the actual thing itself! Right at the base of the great lock at Sault Ste. Marie the Hon. Peter White was detailing the growth of lake commerce, its magnitude and wonderful expansion, the development of vessel property from the small schooner to the giant steamer, when, just as he spoke, the steamer Saxon, upbound, entered the canal with the ease and silence and caution that had marked the same passage of the Indian canoe half a century ago. The speaker's back was turned and he did not see the living stereopticon that was illustrating his very words, but the thousands who were facing him saw it and were greatly impressed.

NAVAL VESSELS IN THE GREAT POE LOCK, BEING LOCKED THROUGH AT ONE TIME

The semi-centennial celebration of the opening of the first canal at Sault Ste. Marie to commerce was held on Wednesday and Thursday of last week and was attended by several thousand citizens. The semi-centennial celebration was under the direction of a commission consisting of the Hon. Peter White, of Marquette, Mich., Horace M. Oren, of Sault Ste. Marie, and Mr. Charles Moore, of Detroit. Mr. Charles T. Harvey, who built the first canal and whose locks were continuously in use from 1855 to 1887, acted as chief marshal of the occasion. At sunrise on Wednesday morning, a naval salute was given by the government fleet in the harbor. At 9 o'clock the band concert began in the Old Fort Brady park on the canal front and was participated in by the regimental band, First United States Infantry, the band of the Third Michigan National Guard and the Calumet & Hecla band. Simultaneously began the naval parade through the locks, making a very effective display, as will be seen from the accompanying photographs. It was unfortunate that there were no giant freighters to join the procession, but notwithstanding their absence, the effect was impressive. The first squadron consisted of the United States steamers Marigold, Tuscarora, Morrell and Mackinac, accompanied by a fleet of other vessels. These vessels were locked through the great Poe lock. It is interesting to state that they were all locked through at once. They then proceeded across the St. Mary's river above the rapids and passed down through the Canadian ship canal and locks. The parade was then joined by every conceivable craft in the harbor, passing in review and exchanging salutes with the gunboat Wolverine and the Michigan Naval Reserve steamer Yantic.

The military parade of the afternoon was under the direction of Mr. Charles T. Harvey, chief marshal. It

was headed by the First United States Infantry band and followed by a battalion of regulars from Fort Brady. The remainder of the military display was made up of the State troops of Michigan. It was interesting to note the difference in deportment between the State troops and the regulars. The regulars marched with their eyes straight ahead, glancing neither to the right nor left and apparently oblivious to the fact that they were on parade. The State troops, however, had eyes for everyone along the sidewalk.

Vice President Fairbanks with Governor Warner, of Michigan, headed the list of carriages, which contained distinguished visitors and the members of the senate and house of representatives of Michigan and other State officials. The parade was reviewed by the Vice President of the United States and the Governor of Michigan from the reviewing stand at Old Fort Brady on the canal.

The latter part of the afternoon was given over to an exhibition of Indian life by a few Ojibway Indians, who had built their tepees on the canal park. The Indians—men, women and children—presented an admirable appearance. Their performance was under the general direction of Mr. W. O. Armstrong, of Montreal, who has done much to preserve the record of Indian life as it existed in the peninsula prior to the advent of the white man.

Wednesday was given over to band concerts and fireworks. It must be admitted that in this particular the Canadians did far better than the Americans. They gave a magnificent display of fireworks which was enjoyed by thousands long after the last rocket had been shot off on the United States side. As a concluding piece the Lake Superior Corporation illumined its great rail mill from one end to the other with innumerable incandescent lights, marking the outline of the building completely and repeating it on the following evening also.

The commemorative exercises were held in the speakers' stand in the south park of the canal on Thursday. The invocation was given by Archdeacon Arthur H. Lord, of Sault Ste. Marie, and in the absence of Mayor Frank Perry, the Hon. Chase S. Osborn, of Sault Ste. Marie delivered the address of welcome. Mr. Osborn was especially felicitous and happy in his remarks, particularly in his reference to the great, black, business batteaux of 10,000 tons that have taken the place of canoes of the voyagers.

Address of Governor Warner.

The Hon. Peter White, who presided, then introduced Governor Fred M. Warner, of Michigan, who read an address upon the subject "The State of Michigan and the Building of the St. Mary's Canal." Governor Warner said in part:

"The act of the legislature in making the appropriation was a fitting recognition of the importance of the canal in the development of the great material and industrial interests of Michigan. When, in the settlement of the difficulty between the States of Michigan and Ohio, that part of the State now embraced in what is known as the upper peninsula was practically forced on the State, the country was believed to be of little value, and it was with great reluctance that Michigan accepted the territory in lieu of the valuable tract ceded to Ohio. What a revelation there has been since that time to the people of Michigan and of the country as to the marvelous resources and untold wealth of the then despised upper peninsula. Here are located the greatest copper producing mines in the world. Here are to be found well-nigh exhaustless deposits of iron ore. Here, notwithstanding the carrying on of extensive lumbering operations for many years, still exist vast forests of valuable timber. And now this peninsula is astonishing the people below the straits by the rapid advancement of its not inconsiderable agricultural interests. In the development of these great and still unmeasured resources the St. Mary's ship canal has borne the leading part. It has been and is the gateway through which have poured the products not only of this peninsula but of the entire northwest—iron from the Mesabi range, wheat from the fertile plains of the Da-

THE INDIAN TEPEES ON THE CANAL PARK AT SAULT STE. MARIE.

kotas and Manitoba—constituting a commerce greater than that which passes through the Suez canal."

Address of Hon. Peter White.

The principal address of the morning was, of course, the historical address upon "The Development of the Lake Superior Region," by the Hon. Peter White, of Marquette. In this address Mr. White reviewed the entire commercial history of the upper peninsula. It is well known that he went into the peninsula as a boy immediately after the discovery of iron deposits; that he was a member of the first party that ever developed the iron mines and that he has been continuously since an active force in the great iron country. His address, while being practically a review of his own life, was in its nature a review of iron mining in the peninsula and especially so as regards the early days. In concluding, he said:

"Population is the child of the canal, industry another, comfort another, education and philanthrophy twins of the canal, agriculture, manufactures, transportation, world intercourse, commercial supremacy, and the world's acreage offering of the canal. The canal has reduced the price of steel rails from $150 a ton to $26, and occasionally even less. King Iron used to reign from an English throne, now his throne is in America. We are now the great creditor nation, and as such have the greatest possible influence in the peace of the world. On the words of a bishop of the English church, I assert that the United States has now the greatest power for world peace of any nation, or that any nation ever had. Our power is largely the result of this canal. If any one knows of anything bigger in the history of civilization I should be glad to hear of it. What was the colossus of Rhodes? What is the great pyramid? Where are the hanging gardens of Babylon? The biggest thing on earth is known by its results, and the biggest thing is the Sault canal. But bigger than anything created is the creator, and larger than anything conceived of is the mind that conceived it.

"This vast land-locked sea with all its tributaries is free, and its freedom means these infinite results. And we who have seen its development and have worked the forests and mines which have chiefly made its commerce, may pause in wonder that so few and so feeble a people living under so cold a sky should have been permitted to share so largely in changing the seat of empire, and enlarging the happiness of the world."

An Unexpected Incident.

A rather touching incident occurred at the conclusion of the exercises during the forenoon. When the Hon. Peter White stepped down from the platform, he was met by Bill Wiaskia, a Chippewa Indian, and two other Indians. At that moment Mrs. Thomas D. Gilbert, of Grand Rapids, Mich., daughter of Rev. Abel Bingham, who established a Baptist mission at the Sault in the early days and who was herself born there, joined the party. Though it has been a great many years since Mrs. Gilbert left the Sault, she was recognized by the Indians and when she asked them if they still remembered the old Indian hymn that was sung at the mission, they nodded and followed both the tune and words as she gave it. Peter White thereupon broke into an Indian song with dance accompaniment to the great delight of the Indians, who immediately began to sing the song and to go through the steps. Mrs. Gilbert was so affected by the scene that it was with difficulty that she restrained her tears.

A most significant demonstration occurred at the afternoon meeting. There were seven speeches altogether

THE CONNECTING LINKS OF THE HALF CENTURIES.
Mrs. Bill Wiaskia, Mrs. Thomas D. Gilbert, Mr. Francis H. Clergue, Mrs. Buchanan, Bill Wiaskia and the Hon. Peter White.

at the afternoon session, all of them delivered under a hot sun and with a natural fatigue, both to speakers and audience, inseparable from so long continued a session. Yet the audience, tired as it was, called for "Clergue," and refused to disperse until he had appeared and said a few words to them. Mr. Francis H. Clergue said that he was now to be regarded only as appearing in the role of a day laborer, but that he had not lost faith in the future or in Sault Ste. Marie, and predicted that before the centennial of the canal could be celebrated, Sault Ste. Marie would be the metropolis of the west.

The principal speaker at the afternoon session was Vice President Fairbanks, who was listened to with great attention and who packed a great deal of excellent matter into very small space. Vice President Fairbanks said in part:

"The canal is identified with the period of our most rapid industrial development. The ever-increasing procession of ships through it, tells the story of our expanding production, growing trade and increasing industrial importance. The sceptre of commercial power is speedily passing into American control. If we are but true to the vast opportunities which lie at our hands, the United States will become the acknowledged leader in the commerce of the world. The conquest will be achieved by the men of trade and not by the men of war. It will come by a sort of irresistible law of commercial gravity. It will come because of our increased productive capacity; because of our superior ability to supply the needs of others; because of the illimitable resources of our farms, mines and factories; because of multiplied methods and enlarged facilities of cheap transportation from the centers of production down to the seaboard. We take pride in our commerce because it tends to lift the country to a higher and better level. It tends to equalize conditions. It enlarges the opportunities of labor and capital and gives our people more homes and fills them with more of the comforts of life. It brings communities and trade centers together in common interest. A higher civilization follows in its pathway.

While we are a commercial people, we are not subservient to commercialism. We seek to expand commerce, as a means, not as an end. We seek its conquests that we may minister to those high aspirations which are the birthright of the Anglo-Saxon race.

It is a well-recognized maxim of trade that commerce will follow the lines of least resistance. The Great Lakes afford cheap transportation for the vast commerce tributary thereto. The control by the government of the Sault Ste. Marie canal, its enlargement and improvement, has resulted in stimulating traffic. It insures just and reasonable transportation charges over a vast area, and will become, as the density of our population increases, and as trade expands, of incalculable importance in the future.

"The United States has been liberal in advancing the interests of commerce. She has been generous in the improvement of rivers and harbors to the end that they should be adequate to meet our advancing national needs. She has appropriated liberally for canals. The Sault Ste. Marie canal is not the only evidence of this fact. Her most important work in promoting the expansion of our commerce is upon the Isthmus of Panama. The enterprise there is of vast magnitude—one which has defeated all efforts hitherto. It is undertaken upon broad lines, for it will welcome impartially the commerce of the world. What others have been many years in endeavoring to accomplish, we shall not do in a day. Much money, time and patience will be required to complete the work. But it will be built, for the United States has put its powerful hand to the task.

"It is a gratifying fact that the enormous commerce of the United States upon the Great Lakes is carried in American ships. The vessels which pass through this canal carrying our products, bear the flag of the United States. They were built in our shipyards and are manned by American seamen. When we come to commerce upon the high seas, we largely give over its carriage to ships built abroad and sailed by alien owners. A large part of the commodities which pass through this canal to the Atlantic seaboard for trans-shipment to foreign countries, is transferred from these American owned and American-operated ships to vessels of foreign ownership and foreign register. This would seem to be incompatible with a wise national policy."

Addresses were then made by Hon. Rodolphe Lemieux, solocitor general of Canada, and the Hon. Raoul Danderan, secretary of the Dominion senate. Both emphasized the fact that while politically separate, the destiny of the United States and Canada is a common one, that they were both pledged to the promotion of peace, commerce and liberty.

Address of Hon. Theo. E. Burton.

Hon. Theodore E. Burton, chairman of the committee on rivers and harbors of the house of representatives, followed with an address upon "The Improvement of Lake Channels," saying in part:

"I congratulate you on the interest which has called this gathering together. I have sometimes been called upon to address thousands of people but never before have I been called upon to address acres of people. I congratulate the United States on the splendid event which we commemorate to-day."

Mr. Burton proceeded to cite figures showing the development of the locks as indicative of the development of commerce. He spoke of how steel supplants wood in vessels, how steam replaces the sail, how minutes now replace hours in loading and unloading boats. In his comparisons he included the Canadian locks, declaring the oneness of the development there. He also hinted broadly on the necessity for a newer, a better, larger and deeper lock at the Soo.

Considering the locks as a means of transportation he declared that freight to producers of raw material is considered by them as only an item of expense, but to the people who receive and manufacture these materials, cheap transportation is a great factor. He spoke of the great revenue in tolls from the Suez, the greatest competitor, and then said that any boat carrying any freight under any flag can pass through the Soo canals without a cent of expense. He cited the greatness of the traffic through the locks. Greater than through the Suez, ten times greater than through the German or Portsmouth canals, greater than the entire internal and coastwise traffic of the German empire.

"Navigators of the Great Lakes" was the title of an address by Wm. Livingstone, president of the Lake Carriers' Association. In it he briefly reviewed the growth of lake commerce since the completion of the Sault Ste. Marie canal, avoiding statistics as a rule, but simply employing a few that were necessary to exhibit the proportion of growth. His address was most excellent, and, while brief, was a perfect compress of information on lake matters.

Senator J. C. Burrows delivered the concluding address, confining his attention solely to the upbuilding of the American merchant marine. He spoke without notes and quite wittily and held the attention of the audience closely.

The exercises were brought to a close by the audience singing "America."

CONTINUOUS PROCESS FOR MANUFACTURING STEEL.

The latest invention of Henry Knoth, formerly superintendent of the Ensley Steel Plant, now in charge of the steel plant at Monterey, Mexico, consists of improvements and additions to former processes for manufacturing steel invented by him and offers great possibilities for increasing the output of steel plans while reducing the cost of the finished product. It was designed in a former process to eliminate the two principal points of loss in connection with the manufacture of steel by the open-hearth processes as usually practiced—i. e., the length of time required to prepare the heats in the furnace for tapping and the scarcity and increased cost of scrap which was charged in large percentages with the pig metal. There still existed, however, in connection with this and prior processes a further point of waste and delay, which relates principally to the production and maintenance of a highly-basic slag capable of taking up the metalloids in the bath.

Where the entire treatment of the metal to be purified has been conducted in open-hearth furnaces, it has been proposed to improve upon the usual method of charging and heating the basic additions on the hearth by preparing a highly-oxidizing liquid basic slag in a cupola or auxiliary furnace, from which it is drawn off and introduced upon the molten metal on the hearth, producing an immediate reaction. It has also been proposed to retain a portion of the molten steel, with its slag covering, through which the molten pig metal to be purified for a second heat is poured, the impure slag being withdrawn from time to time and fresh basic additions introduced to maintain it in a condition capable of taking up the phosphorus and silicon in the bath. The process, for which letters patent were issued May 2, 1905, is termed "A Slag Process," because it is directed principally to the providing and maintaining, in an economical manner, of a liquid basic slag which will bring the heats promptly into action. As the process reaches its highest usefulness in connection with the duplex process where the unpurified metal is blown in an acid convertor to reduce its silicon and carbon contents before charging it in a molten condition into an open hearth furnace, it may be briefly described in this connection as follows: An initial heat is prepared in a basic open hearth furnace in the usual manner, and when ready to be poured, the liquid slag is withdrawn into a ladle or some suitable receptacle. After the steel has been tapped from the furnace, it is repaired, if necessary, and recharged with a bath of unpurified metal which has been blown in an acid convertor and is charged in a molten condition. The molten slag from the previous heat is now returned to the furnace in liquid condition, its losses in basic properties being replaced by lime or other desired fluxing material. On account of the ready condition of the slag, the bath will go at once into action and the duration of the heat will be materially reduced. The process is continuous, the slag being maintained basic and used for successive heats.

The following tests of the process were made at the Monterey Steel Plant where, there being no converter available, the unpurified metal was melted in one furnace and charged in molten condition into the furnace in which the test was conducted. Thus 24 tons of pig iron (1.50 percent Si, 0.40 percent Mn, 0.06 percent S and .120 percent P) were melted with six tons of scrap without additions and tapped with 1 percent carbon into an open hearth furnace. The slag from a previous heat in this furnace was returned thereto in liquid condition with about 1,000 kilos of limestone. The slag between heats was reserved in a ladle from which it was poured into the furnace-back door, and charging boxes were also used in this connection as the slag was charged in molten condition, with the charging machine. The liquid slag immediately acted on the limestone, and after the addition of some fluorspar, the heat went into action at once. After adding ore several times the heat was tapped in 2 hours and 35 minutes. This process was repeated a number of times with substantially similar results. Below are the analyses of the unpurified metal, the slag and the steel as tapped in three succeeding heats, the times for th heat being given:

Duration of the Heat from Charging of the Liquid Material Till Tapping.

No. 1.	No. 2.	No. 3.
2 hours 35 min.	2 hours 40 min.	2 hours 5 min.

Analysis of Unpurified Metal Charged.

	No. 1. Percent.	No. 2. Percent.	No. 3. Percent.
Silicon	Trace.	Trace.	Trace.
Manganese	0.14	0.16	0.15
Phosphorus	0.115	0.121	0.130
Sulphur	0.061	0.065	0.064
Carbon	1.05	0.96	0.89

Analysis of the Slag.

	No. 1. Percent.	No. 2. Percent.	No. 3. Percent.
SiO_2	12.96	12.77	11.76
Al_2O_3	7.89	8.11	7.93
Fe	15.40	11.48	14.39
CaO	48.47	47.50	44.79
MgO	6.62	7.28	8.51
MnO	2.00	2.38	2.95
S	0.38	0.45	0.46
P_2O_3	1.80	2.96	4.35

Analysis of the Steel.

	No. 1. Percent.	No. 2. Percent.	No. 3. Percent.
Manganese	0.38	0.32	0.45
Phosphorus	0.01	0.006	0.012
Sulphur	0.045	0.038	0.049
Carbon	0.10	0.09	0.23

The Knoth process should be of considerable importance to the Southern steel manufacturers where a large portion of the open hearth steel is made. The saving in basic materials would largely offset the cost of blowing the metal by a converter and would cheapen this process, which is now being successfully carried out at the Ensley Steel Plant. In addition to this, the other advantages claimed for the process consist in the increase of production, the short time of the heats in the furnace and accordingly the increased life of the furnace hearth, the opportunity to repair the furnace bottom between heats without interrupting the continuity of the process, the utilization of all the basic properties in the slag and the reduction of the quantity of material thrown on the slag pile and handled at an expense.

Under proper conditions where the duplex process is now successfully employed, the Knoth slag process should readily enable 200 tons of finished steel to be obtained within 24 hours from a 30-ton furnace. That this large production is obtained without greater wear upon the furnace makes the value of the process more pronounced. For information concerning this process, inquiries should be directed to R. D. Johnston Jr., First National Bank Bldg., Birmingham, Ala.

A recent report from the British consul at Stockholm, Sweden, states that the Stora Kopparberg Co. is increasing its works at Domnarfvet. The company intends putting in a plant for rolling rails, girders, etc. Such products have been previously imported from Germany or the United Kingdom, so that this will be an entirely new industry for Sweden. A mill engine of 5,000 h. p. for driving this plant is under construction, and it is expected that the output from the mill per year will be 50,000 tons.

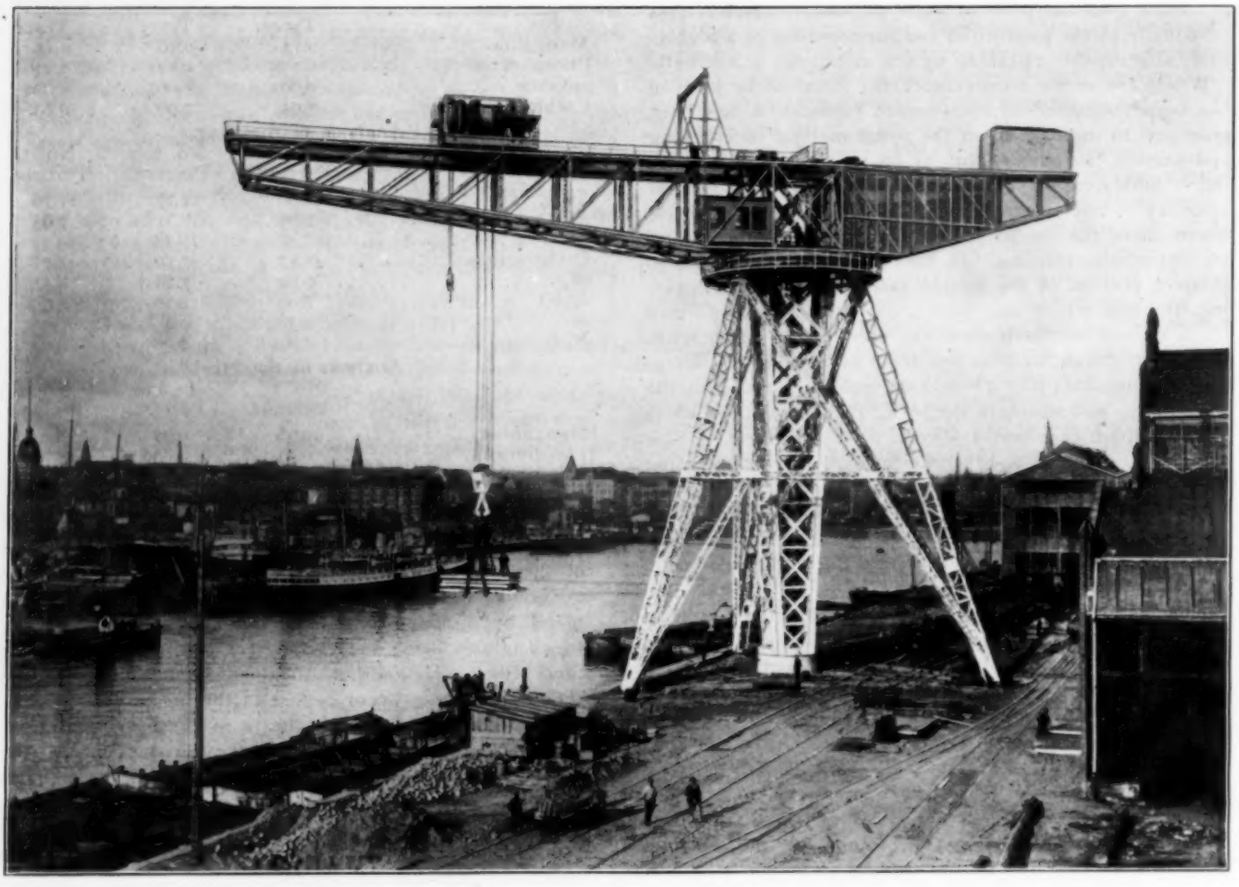
A 150 TON LOADING CRANE.

BY E. GUARINI.

The Duisburger Machine Co., formerly Bechem & Keetman, of Duisburg, Germany, has recently erected for Kisl Gaarden a 150-ton traveling crane, especially designed for boat unloading from the wharf. It is a steam crane, despite the marked favor which electrically driven hoists are enjoying at present. The boom of the crane also exhibits a peculiarity in that it does not swing through a complete circle. In the rear of the machine, fastened to the edge of the wharf, anchor supports project and at the same time do not interfere with the movement of the load.

The three supporting legs of the apparatus take up a comparatively small space and in no way interfere with traffic on the wharf. Owing to the ample clearance under the arm, the extremity of which may be temporarily raised, the outer pulley and the arm can swing over all the masts when the boats are lying at the normal level. The crane has no counterbalancing weight. The highest elevation of the pulley end of the boom is 161.5 ft. The two engines have double cylinders. One operates the drum which raises the crane arm and the other swings it horizontally and raises and lowers the load. The energy produced in dropping the load is taken up by a friction drum placed on the circumference of the cable sheave.

In handling the maximum load of 150 tons the inclination of the end of the boom from the perpendicular does not exceed 60 feet, and the speed at which it will lift is about 4.2 ft. per minute. For a 75-ton load the speed is doubled. For 30 tons the arm may have an inclination of 104.68 ft. and a lifting speed of 19.5 ft. per minute. For 10 ton loads the speed may run up to 41 ft. per minute. Numerous operating platforms permit the manipulator of the crane to watch the handling of the load during the transmission.



A 150 TON LOADING CRANE AT DUISBERG, GERMANY.

Aluminum Paper.

According to a report by United States Consul-General Guenther, Frankfort, Germany, aluminum paper is now manufactured in Germany and recommended as a substitute for tin foil. It is not the so-called leaf aluminum, but real paper coated with powdered aluminum, and is said to possess very favorable qualities for preserving articles of food, for which it is used as a covering. Chemical analysis has proven that aluminum paper contains but few foreign substances; occasionally it may contain up to 2 percent of iron, but never any arsenic or other poisonous metals. Hence it appears that the powdered aluminum used for the manufacture of aluminum paper is relatively pure. The paper used is a sort of artificial parchment, obtained through the action of sulphuric acid upon ordinary paper. The sheets are spread out and covered upon one side with a thin coating of a solution of resin in alcohol or ether. Evaporation is precipitated through a current of air and the paper is then warmed until the rosin has again become soft. Then powdered aluminum is sprinkled upon it and the paper subjected to strong pressure to fasten the powder thereon. The metallic covering so obtained is neither affected by the air nor by fatty substances. Aluminum paper is much cheaper than tin foil and will, so it is thought in Germany, become a strong competitor thereof.

NAGEL SUCTION-GAS PRODUCERS.

Suction-gas producer plants are being more and more introduced with great success in this country on account of their simple working and great economy in running and maintaining expenses. They are used in connection with a gas engine for developing power for all kinds of industries and shops.

Such a suction-gas producer as is shown in the cut, is working successfully in the machine shop of the F. W. Horstmann Co., East Newark, N. J. This shop, which formerly used illuminating gas, in connection with a gas engine, is using now a gas producer. The plant, which was built by Dr. Oskar Nagel, New York city, is working according to the guarantee given with the plant, that is, the development of 1 brake h. p. hour from 1¼ lb. of anthracite (pea) on full load, 1 ⅓ lb. on ¾ load, and 1½ lb. on ½ load.

The plant has a capacity of 20 h. p. and consists of a hand blower, producer with evaporator on top of same and a scrubber which is shown in the illustration. The overflow water-pot, which belongs to the plant, is in the pit between the producer and the scrubber, and a small equalizing tank is connected on the floor below to the engine so as to connect the scrubber with the engine.

By the sucking action of the engine the air is drawn over the surface of hot water in a water-jacket and saturated with steam, and this saturated mixture of steam and air is drawn through the fuel whereby the producer gas is generated. From the producer the gas goes through the scrubber, which is filled with coke, and where it is freed from dust and tar by means of water. From the scrubber the gas goes through the equalizer, which is a simple iron drum, to the engine.

This plant is provided with a hopper which is sufficiently large to contain fuel for the whole working day, so that no refilling of coal is required during the working hours. After shutting down over night the lower door is kept somewhat open, and also the valve leading to the flue, so as to keep up a little draft and maintain the fire. In the morning before starting up, the fire is cleaned of ashes, and the hopper filled with coal, and then the fire is blown hot for about ten or fifteen minutes by means of a hand blower until the gas is burning well at the test cock, and then the engine is started as usual.

During the working day the plant does not require any attention except cleaning the grate once or twice a day.

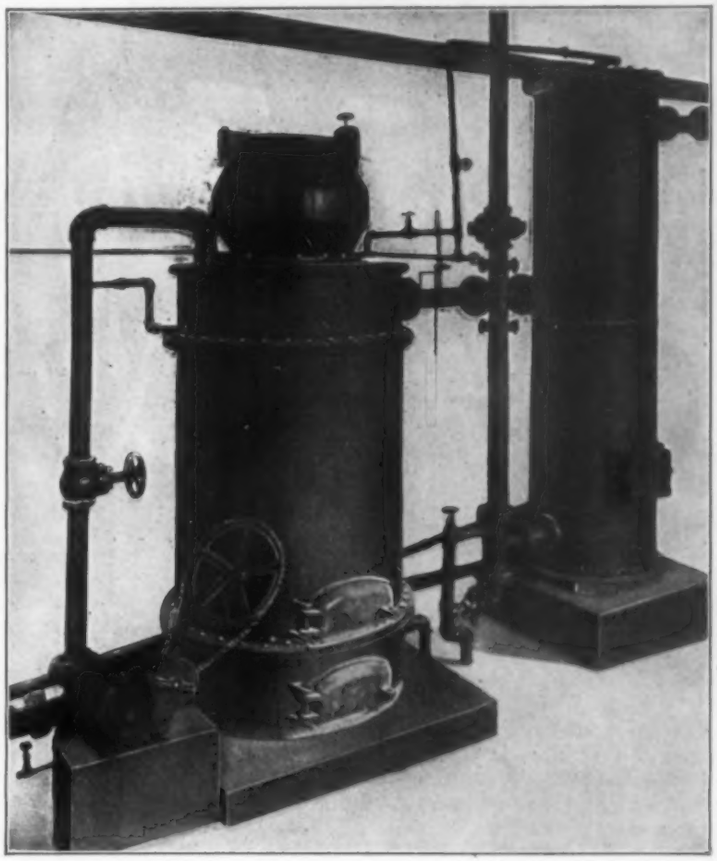
A similar plant of the same make is at the elevator of the Stockbridge Elevator Co., Stockbridge, Mich., and is working successfully on the changing load. This company used, until a short time ago, a gasoline engine for developing its power, and has now installed this producer, which works very satisfactorily with the engine after the compression in the latter had been increased sufficiently.

Various reports concerning the establishment of a shipbuilding plant at Sydney, N. S., to be a branch of the Armstrong Arms Works, of England, are somewhat premature. Some of the directors of the Cape Breton Coal, Iron & Railway Co., Ltd., are also directors and shareholders in the Armstrong Works. The matter has developed no further than to be considered.

THE PRODUCTION OF ABRASIVE MATERIALS IN 1904.

The United States Geological Survey has issued a statement of the production of abrasive materials during 1904. These are divided into three groups: (1) Those which occur as rock formations and are cut and manufactured directly into the form desired while retaining their original rock structure and appearance, such as grindstones, scythestones, etc. (2) Those which occur as constituents of either rocks or veins and have to be mechanically separated from the gangue. Corundum, garnet, etc., are in this class. (3) Artificial abrasives, such as carborundum, crushed steel, etc.

In 1904 the aggregate value of the natural abrasive materials produced was $1,406,851. This is a decrease of $86,452 compared with the production in 1903. The value of oilstones and scythestones produced was $188,985, of grindstones and pulpstones $881,527, of buhrstones and millstones $37,338, of pumice $5,421, of infusorial earth and tripoli $44,164, of crystalline quartz $74,600, of garnet $117,581, of corundum and emery $57,235.



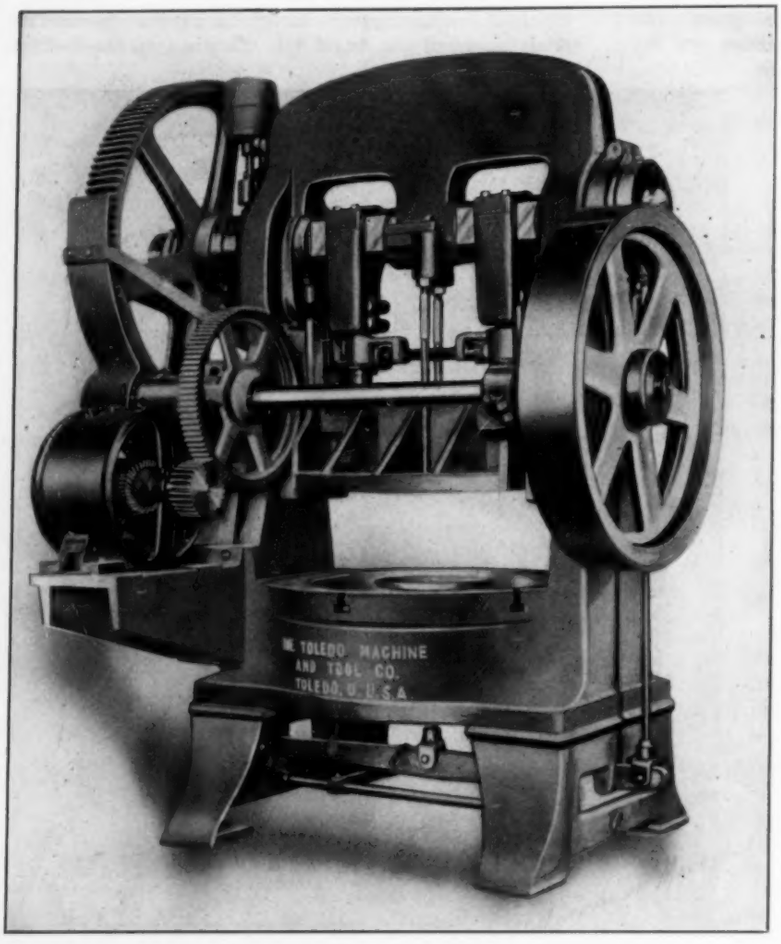
NAGEL SUCTION-GAS PRODUCER.

The estimated value of artificial abrasives produced in 1904 was $830,926. This is an increase of $337,111 compared with the value of the 1903 production. The amount of carborundum produced in the United States during 1904 was 7,060,380 lb. The crushed steel amounted to 790,000 lb., the alundum to 4,020,000 lb.

The value of the abrasives imported to the United States in 1904 was $547,804. This is a decrease of $73,771 compared with 1903. The total value of abrasive materials consumed in the United States during 1904 was $2,785,581, an increase of $176,888 over 1903. The abrasives produced in the United States in 1904 came from 26 different states.

DOUBLE PITMAN POWER PRESS WITH MOTOR DRIVE.

The Toledo Machine & Tool Co., Toledo, O., has recently placed on the market a new double pitman power press with direct motor drive. This press is illustrated in the accompanying engraving. The machine represents one of a line of 13 sizes for blanking and perforating discs and segments used in the construction of dynamos and motors. The press is fitted with a cam-actuated lower knockout in the bed, which is designed for ejecting the work from dies of a compound construction. The bed of the press is machined central with the slide down to a shoulder. This shoulder is for convenience in attaching filler rings to suit dies of various sizes and diameters.



DOUBLE PITMAN POWER PRESS WITH MOTOR DRIVE.

The ram of the press is fitted with a positive adjustable knockout, there being the same adjustment with the knockout as there is with the slide or head. By means of the upper and lower knockout, the use of springs in the dies is eliminated entirely. The motor is attached in such a manner that the floor space over all required for the machine is not greater than the floor space required for the ordinary type of the belt-driven machine. The machine is built in sizes varying in widths from 24 in. to 72 in. Its weight is from 5,000 to 65,000 lb., according to the size of the machine.

The officers of the Detroit Foundry Supply Co., Detroit, Mich., recently incorporated, are as follows: Edward J. Woodison, president; L. A. Crandall, vice president; W. F. Bartlet, treasurer, and W. Bruce Howard, secretary.

A FIRE-PROOF WINDOW SASH.

The Champion Iron Co., Kenton, Ohio, is the manufacturer of a type of window sash and frame which possesses a number of novel features, and which is known as the Phoenix Steel Fireproof Window. The parts are made entirely of steel, insuring great strength, and also rendering the window framing fireproof. This last is a very desirable quality, as has been shown by a number of recent large conflagrations, in which fire found access to many buildings from the outside, through the window spaces. This was due in many cases to the failure of the sashes, which rendered void the protection which might otherwise have been afforded by wire glass in the windows, and by shutters.

The sash frame manufactured by the Champion Iron Co. is made from one piece of steel, which is pressed into shape. The sill is formed of cold pressed steel. The crossbars for supporting the window panes are of steel, and are constructed with an air space of sufficient area to retard heat radiation. This form of bar is stated to withstand heat better, and to be more adapted to its work than a plain galvanized iron bar. The component parts of the sash and framing are riveted together, and present no heads to the outside. Greater security is secured by this means, as it is impossible to remove the sash.

The sashes are provided with a lock and a master key is furnished which will unlock any sash of a building from the outside. This is regarded as an important feature in case of fire, as it is not necessary to break the window to enter the building, and thus provide a draft which cannot be shut off and which may fan the fire beyond control.

The window is unique in that it has no weights and that it automatically closes and locks itself when subjected to a temperature of 130 degrees Fahr. It thus furnishes a constant protection against exposure fires. The window is fitted with wire glass to more readily enable it to resist fires, and at the same time it is weatherproof and easily cleaned on both sides.

The company also manufactures a fireproof window suitable for office buildings. This is more ornamental than the one made for factories and warehouses, but is automatic in its action and possesses all the desirable features of the other.

A notable installation of these fireproof windows is the warehouse of the Pittsburg River & Railroad Terminal Co., at Pittsburg. The external wall surface comprises 223,000 sq. ft., in which are 46,500 sq. ft. of glass covered openings. These are all covered by wire glass fitted in Phoenix steel sashes furnished by the Champion Iron Co. Another important installation of this character is in the Spear Furniture Co.'s building at Penn avenue and Ninth street, Pittsburg. This is a twelve-story building and the windows and store fronts are all equipped with Phoenix window frames.

The Phoenix Steel Construction Co., of Pittsburg, are the sole distributers and patentees of this fireproof window.

NEWS FROM MANY INDUSTRIES.

New Buyers :—

The Keiser Mfg. Co., Shamokin, Pa., has been incorporated with a capital stock of $35,000.

The Standard Automobile Co., New York city, has been incorporated to manufacture automobiles, motors, engines, etc.

The Carroll Barb Wire Mfg. & Fence Co., Peoria, Ill., has been incorporated with a capital of $100,000. The incorporators are: J. F. C. Carroll, L. V. Metzger and W. A. Wittick.

The Toronto Launch & Engine Co., Ltd., Toronto, Canada, has been incorporated with a capital of $40,000. The directors are: J. C. McLachlan, owner of the patents; J. G. Robinson, G. E. Buck, G. W. Hambly and R. G. Copeland.

The Peifley Builders' Supply Co., Connellsville, Pa., has been incorporated with a capital of $50,000. The incorporators are: F. Peifley, Connellsville; W. I. Hunter, George Palms, W. A. Kunkel and L. P. Wentzell, Greensburg.

James L. Robertson & Sons, New York city, has been incorporated with a capital stock of $75,000. The directors are: J. L. Robertson, Bayonne City, N. J.; J. L. Robertson, Jr., Ramsey, N. J., and Frank Robertson, New York city. The concern will manufacture tools.

The Smith Improved Lock Nut Co., Rockford, Ill., has been incorporated with a capital of $15,000, to carry on a manufacturing business. The incorporators are: H. D. Ticknor, Charles B. Berger and Charles H. Smith.

The Standard Architectural Iron Works, Chicago, has been incorporated with a capital stock of $18,000. The incorporators are: Victor F. Bendixen, Holvor Michelson and Oscar M. Torrison.

The Pontiac Iron Co., Pontiac, Mich., has been incorporated with a capital stock of $50,000.

The Millsaps Mfg. Co., Jersey City, N. J., has been incorporated with a capital of $125,000, to manufacture iron, steel manganese, coke, etc. The incorporators are: Jefferson H. Millsaps, Louis B. Dailey and Thos. F. Barrett, all of Jersey City.

The Perfection Wire Goods Co., Jersey City, N. J., has been incorporated to manufacture wire goods. The capital stock is $50,000. The incorporators are: Collins C. Diball, New Orleans, La.; Wm. J. Hendrick, New York city; Clarence Linn, Jersey City.

The Derby Tool Grinder Co., Jamestown, N. Y., has been incorporated to manufacture tool grinders and sharpeners, etc. The capital is $15,000, and the incorporators are: Silas L. Derby, Frewsburgh, N. Y.; Arthur W. Kettle and James Ganns, both of Jamestown, N. Y.

The Hazelhurst Machine Shops, Hazelhurst, Copiah county, Wis., has been incorporated with a capital stock of $5,000. The incorporators are: W. M. Wilson, T. E. Welch and others.

The General Machinery & Supply Co., Chicago, has been incorporated to manufacture machinery. The capital is $75,000. The incorporators are: Herman O. Lange, Alfred Marshall and Charles E. Billin.

The Fuel Saving Machinery Co., Chicago, has been incorporated with $15,000 capital stock. The incorporators are: Clarence B. Fisher, F. V. Ohl and Percival Steele.

The Riverside Iron Works, Charleston, South Carolina, has purchased 266 ft. of wharf front property, together with two piers, and will enlarge their plant, rebuilding the wharf and making other improvements.

The Fairbanks-Morse Canadian Mfg. Co., Toronto, Canada, has been incorporated with a capital of $250,000 to manufacture tin, iron, steel, manganese, etc. G. W. Sparks, of Chicago, is one of the directors.

Work has been started on the construction of a $100,000 steel casting plant, to be erected by the Prescott Co., of Menominee, Mich. The new plant will employ about 100 men, and is expected to be ready in December.

The Crown Casting Co., 15 Exchange Place, Jersey City, N. J., has been incorporated to manufacture iron, steel, brass, bronze, castings, wheels, axles, tubes, etc. The capital is $150,000. The incorporators are: Thornton N. Motley, Norman W. Kerngood and Louis B. Dailey, all of 15 Exchange Place, Jersey City.

The Louis Furnace & Range Co., New York city, has been incorporated to manufacture stoves, ranges, etc., with a capital of $20,000. The incorporators are: Samuel Turansky, 354 Stores avenue; Mark S. Feiler, 160 East Pitkin avenue, and Morris Hallperan, No. 1 Charles street, all of New York city.

The American Press Forging Co., 147 East State street, Trenton, N. J., has been incorporated to manufacture pressed forgings and deal in iron, iron ore, etc. The capital is $125,000. The incorporators are: O. E. Longsdorf, W. Lockwood Murray and M. L. Davis, all of 147 East State street, Trenton, N. J.

The United States Metal Chill & Casting Co., East Orange, has been incorporated to manufacture articles made from iron, etc. The capital is $5,000,000, and the incorporators are: Thomas W. Duane, James Sayers, Isaac Beers, Edward A. McCann and Samuel L. Schwarz, all of East Orange, N. J.

The Bornstein Mfg. Co., at Third and Westmoreland streets, Philadelphia, have had their plans sent to contractors for a foundry building, office and sorting and pattern storage building. The foundry building will measure 201 x 50 ft. and will have attached to it a wing 46 x 92 ft. It will contain cupolas, rumbler room, core ovens and core shop. Ballinger & Perrott are the architects and engineers.

The Baltimore Foundry Co., Baltimore, Md., has been incorporated to carry on a general foundry business and to make structural iron and steel. The capital stock is $30,000, and the incorporators are: Andrew J. Dietrich, A. Clarence Dietrich, Hammond Dietrich, Jacob C. Dietrich and John W. Diven. The company has acquired the Lorraine Foundry, on Bush, Severn and Wicomico streets, and the Baltimore & Ohio tracks, together with the foundry buildings, 104 x 300 ft. Extensive improvements will be made in the near future. Mr. Andrew J. Dietrich will be president and treasurer of the company.

The New Bedford Gas Engine Co., New Bedford, Mass., has been incorporated with a capital stock of $20,000. The company will manufacture gasoline engines at present, although gas engines will be built later on. Marine engines from 2 to 10 h. p. are the specialties, and the growth of this branch which has been carried on for about a year necessitated the formation of a corporation and the addition of greater capital. The president of the new concern is James N. Gifford, of Fairhaven, and the treaurer is Fred J. Whipple, of New Bedford. During the past winter the shop has been running nights in order to fill the orders received. It is the intention of the company to enlarge their present quarters as soon as possible and equip the plant with the latest machinery necessary for their work.

The Shaw Machine Co., Lowell, Mass., recently organized with a capital of $300,000 to manufacture textile ma-

chinery, plans to equip its new shop with the very best of machinery to enable it to compete on most favorable terms with rival concerns. The company will be glad to receive catalogues for its new equipment. The officers of the company are: President and general manager, Frederick P. Shaw; treasurer, John C. Burke, of Lowell; assistant secretary and treasurer, Ralph O. Ingram, Lawrence; directors, Frederick P. Shaw, Charles L. Hildreth, Lowell; John C. Burke, William A. Lee Jr., Brooklyn, N. Y., and Ralph O. Ingram. Walter A. Scott, formerly foreman of the worsted and card departments of the Lowell machine shop, will be shop superintendent. The company expects to have its plant in operation inside of four months.

Fires:—

The Union Iron Foundry Works at Georgetown, Wash., was destroyed by fire recently with a loss of $20,000, insurance unknown.

The Meriden Fire Arms Co., Meriden, Conn., suffered damage to the extent of $25,000, as the result of a fire a short time ago.

The American Machine Co., Louisville, Ky., was involved in a fire which threatened for some time to result disastrously to the city last week. The company suffered a loss of $4,000.

The foundry of the Fagan Iron Works Co., Jersey City, was destroyed by fire on the morning of Aug. 2. The loss will amount to about $100,000, and is particularly severe in that this is the second time in three months that this plant has been burned. New buildings just being erected were partly destroyed.

The plant of the Baldwin Steel Co., at Cold Spring, N. Y., was visited by a disastrous fire July 31, which completely gutted it. The works which adjoins that of the J. B. & J. M. Cornell Co., which is interested in it, was recently moved from Pittsburg. The loss was covered by insurance.

The machine shops of the Charleston Machine & Manufacturing Co., of Bethlehem, Pa., were destroyed by fire, supposed to have been of incendiary origin, on July 19. The buildings, including a three-story grist mill adjoining, which was also burned, were valued at $20,000, and were insured for $3,000. The shops were equipped only a few months ago at a cost of many thousands and no insurance had been placed. The loss to the manufacturing company is estimated at $38,000.

New Construction:—

The Holland Radiator Works at Bremen, Ind., will build a new foundry addition 90 x 150 ft. in dimensions.

The American Steel & Wire Co., Cleveland, is erecting two large brick stacks at its plant on Merkel avenue. The contract has been let to the D. C. Griese & Walker Co.

The Bessemer Machine & Foundry Co., Birmingham, Ala., is enlarging its plant at Eighth avenue and Twenty-fourth street by 100 ft.

Mr. C. W. Bellows has had plans and specifications prepared for a large addition to be made to the plant of the E. N. Hulse Iron Foundry, of Columbus, O.

Contracts have been let by the Alabama Consolidated Coal & Iron Co., Birmingham, Ala., for 100 new coke ovens, which will give that concern an aggregate annual output of 350,000 tons of coke.

The Illinois Machine & Foundry Co., of Chicago, Ill., is to erect a new plant at Decatur, Ill., the Chamber of Commerce of Decatur having given them a free site and a bonus of $14,000.

The Hendey Machine Co., Torrington, Conn., is erecting a large new factory building. The structure is of brick, steel and expanded metal, and will be fitted with electric traveling cranes.

The contract for the complete forge shop equipment of the new manual training school of Washington University, St. Louis, Mo., has been awarded to the B. F. Sturtevant Co., of Boston. This consists of twenty down draft forges with blast and exhaust fans.

Hill & Bostley, foundrymen, are constructing a new foundry 48 x 120 ft., near the Boston & Maine Railroad station, Winchendon, Mass. They will vacate their present quarters in the near future.

The Continental Iron & Steel Co., New York city, has purchased property in East Rahway, N. J., and will build a plant there that it expects to have in operation the coming winter.

Ground has been broken for two plants, each 640 ft. long by 140 ft. wide, for the Pressed Steel Car Co., Pittsburg. The new buildings will be used for the manufacture of steel street cars, and will furnish employment for 600 additional men.

The Cincinnati Realty Co., Cincinnati, has awarded the contract for the structural steel work for the new hotel to be built on the Pike site to the Carnegie Steel Co. Not less than 2,500 tons will be required and the steel work alone will cost about $140,000.

The B. & O. railroad intends erecting a brick roundhouse at Lorain, O. A new machine shop for light work will also be constructed, the cost to be $15,000. The contract for the improvements was awarded in Cleveland, July 22.

The plans for the new plant of the Thomas H. Conway Stove Co., Detroit, Mich., have been recently completed by E. A. Walshe & Son. The new buildings will cost $110,000, and will consist of offices and show rooms, 48 x 135 ft., two stories high, and of brick construction.

The new construction of the Schonthal Iron & Steel Co., Columbus, O., is being held up because of lack of steel. Work will proceed soon, it is expected, and it is hoped that the machinery already ordered will be installed and the plant ready for business early in the fall.

The Albany Forge, Albany, N. Y., has about completed a new blacksmith shop for its smaller work. The new shop is to be equipped with a 12-in. McDougall-Potter steam hammer and with about eight fires and furnaces. It will be ready for use early in September.

A new foundry to take the place of the one recently destroyed by fire will be erected in 60 days by the Scranton Steam Pump Co., of Scranton, Pa. The new building will be of fireproof construction, and either steel or brick will be the material used.

The Alabama Consolidated Coal & Iron Co. has let contracts for building 100 new coke ovens, which will bring the total number up to 865, with an annual output of 300,000 to 350,000 tons. Work on the firm's new furnace has advanced rapidly and it is expected that it will be blown in next January.

The Dominion Bridge Co. is contemplating the erection of a plant in Winnipeg to supply material for its western business. Negotiations are said to be in progress for a suitable site. The new plant will employ about 150 men, and will be equipped with shears and punching and riveting machinery.

The Eastern Steel Co., Pottsville, Pa., just beginning to operate its new plant, is planning for the construction of two additional open hearth furnaces of 50 tons capacity each to cost $100,000 apiece. This company plans to develop into the largest structural steel works east of Pittsburg.

The Colonial Foundry & Machinery Co., South Norwald, Conn., as a result of the recent increase in the size of its plant is able to turn out 25 to 30 tons a day, consisting of castings, none of which run over a ton in weight. The demand for the Argand steam hot water

boilers, the making of which constitutes a large part of its business has increased very rapidly, necessitating the enlargement of its plant.

The American Shipbuilding Co. has been preparing its property at Lorain, Ohio, for the erection of a new drydock of especially large size. Although very desirous of beginning construction, no bids of the number already received have been satisfactory, and until a suitable contract can be made little will be announced. The dock is to be over 700 ft. long, and will be one of the largest in the world.

Messrs. Ferguson & Calrow, architects, have let the contract for the rebuilding of the Elizabeth Iron Works, Norfolk, Va., destroyed by fire some time ago. The contract is let to Contractor J. H. Pierce and work will begin at once. It will be rebuilt at the old location on Water street on a much larger plan, and will cost about $80,000. It will be a brick and steel structure, fitted up with latest improved machinery when complete.

The Henning Mfg. Co., Minneapolis, Minn., recently incorporated to succeed J. Henning, contemplates building a new plant with machinery and equipment suitable for the manufacturing of steel ceilings, cornices, skylights, corrugated iron, eave trough and conductor pipe, elbows and all kinds of ornamental metal work and also the continuation of the manufacture of "Hennings Elastic Cement Roofing," which has been on the market for a number of years.

Norton Emery Wheel Co., of Worcester, Mass., is making several extensions to its plant, increasing the size of the office building, and also of the main wheel factory by 50 percent, putting in new kilns, extending the crushing plant considerably and making many additions to the power house, putting in new pumps, engines and boilers. The company also reports that it has never seen the outlook for business so promising. The total sales for six months ending July 1 show an increase of 50 percent over the largest previous six months in the history of their business.

General Industrial Notes:—

The St. John N. B. Foundry Co., St. John, N. B., is to double the capacity of its stove foundry.

The Greer tin plant, subsidiary to the American Sheet & Tin Plate Co., resumed operations Monday, Aug. 7, after being idle since June 30.

The Minnequa plant of the Colorado Fuel & Iron Co. has had a new pig iron machine installed at the cost of $40,000.

The Buckeye Ornamental Iron Works Co., Cleveland, has amended its charter changing its name to the Buckeye Fixture Co.

The Montreal Steel Works Co., Montreal, Canada, has purchased a site and will extend its works.

The Sharon Angle Mill of the Carnegie Steel Co. broke its previous record of 428 tons by recently turning out 530 tons in one day.

The Bessemer & Lake Erie Railroad has just received the first consignment on its 1,000 car order from the Standard Steel Car Co.

The Variety Iron Works Co., Cleveland, was the lowest bidder for the construction of a new bridge at Water street, Springfield, O., the bid being $10,760.

The Central Foundry Co., Bessemer, Ala., will improve its plant in the near future by the addition of new machinery for its pipe works.

Seven hundred tons of steel rails from the foundries of the Colorado Fuel & Iron Co. have been delivered to the Spokane & Inland Railroad as the first installment of their order for 10,000 tons.

The Cramp Shipbuilding Co. has assumed contracts for building merchant vessels aggregating in value over $2,000,000. These are for the Ward Line, the Southern Pacific Steamship Co., and the New York, New Haven & Hartford Railroad Co.

The Greenville plant of the Shelby Steel Tube Co., a part of the United States Steel Corporation, has been placed on triple turn for the first time in its history. Large size weldless tubing is made at this plant exclusively.

The Sullivan Machinery Co., Chicago, has recently shipped to Colon, Canal Zone, Panama, 25 steam rock drills fitted with the new Sullivan tappet valves, for use by the Isthmian Canal Commission.

The Bass Foundry & Machine Works, Fort Wayne, Ind., has been awarded the contract by the Pennsylvania Railroad Co. for building 21 oil tanks for use in the company's new shops at Altoona, Pa.

The Limonite Mining Co., organized by Major A. D. Reynolds, of Bristol, Tenn., will begin mining soft iron ore in Carter county, along the line of the Virginia & Southwestern railroad. Limonite is the hydrated oxide of iron.

The Ralston Steel Car Co., Columbus, O., has purchased an additional 100 acres of land lying across the railroad tracks at the plant of that company. The progress of preparing the Ralston Co.'s new plant for operating is very rapid.

The Eastern Steel Co., Pottsville, Pa., has but one of its open hearth furnaces in operation yet, but that is operating very successfully. In other departments the plant is running very nicely and the remainder of the work is being pushed along very rapidly.

The new incorporation under the name Richmond Pattern & Structural Iron Works has a capital of $40,000, all paid up, and not $15,000 as stated in our issue of July 27. Fifteen thousand dollars was the capitalization of the original company, which also acquired the plant stock and all assets of the Richmond Pattern Works, Richmond, Va., valued at $25,000.

Trouble has again sprung up in the ranks of Western coke dealers as a result of alleged rebate granting. The complaint has been lodged against the Santa Fe for granting rebates to the Colorado Fuel & Iron Co. on coke shipments after having been enjoined from such practice. The railroad denies the charge.

The Vulcan Foundry Co., New Castle, Pa., after an idleness of several weeks, will resume operations within a short time. It has been rumored that the Buffalo, Rochester & Pittsburg railroad was about to purchase the foundry site for a machine shop, but this is denied. The plant makes a specialty of ingot molds for steel mills and all kinds of mill machinery.

Nova Scotia Steel & Coal Co., New Glasgow, N. S., contrary to a current report, has no intention of removing its plant from New Glasgow to Sydney Mines. It has stopped melting at Trenton, and has its new open hearth plant at Sydney Mines, which has been very largely increased, and is using hot metal, working. It will continue to do the rolling as heretofore at Trenton.

The Vaughn-Road Machine Co., of Peabody, Mass., and the Turner Machine Co., of Boston, have consolidated and the business of manufacturing tanning machinery will be carried on at the establishment of the Vaughn-Road Co.

The Fort Worth Iron & Bolt Co., South Hemphill Heights, Texas, is contemplating further increase in the capacity of its plant and is daily receiving new machinery.

Eaton & Brownell, engineers and architects, Watertown, N. Y., announce that they have located and are ready to receive business in various engineering lines. Their specialties will be civil engineering, mechanical engineering, mechanical, sulphite and soda pulp and paper mills, water, steam and electric power plants and their

development, and a special department for architectural work. The civil engineering department will be under the direction of Mr. James P. Brownell, and the mechanical department and mill construction will be under the personal direction of the senior member, Mr. Chas. E. Eaton. The architectural department will be in charge of a competent staff of architects.

Trade Notes:—

The Ireland & Mathews Mfg. Co., whose plant was recently damaged by fire, is again ready to handle orders.

Large consignments of Cameron pumps recently went to the Pacific Coast Coal Co., The Banquet Colliery at Alberta, Quebec, and to the coal mines about Birmingham, Ala.

A proposition has been presented to the Pennsylvania Steel Co. by the Steelton and Harrisburg gas companies looking toward the use of the gas from the coke ovens of the company as a source of supply for the illumination of those towns.

The Ridgeway Machine Tool Co., Ridgeway, Pa., has begun to manufacture machines in its recently completed plant. The company is owned largely by residents of Philadelphia.

The Kerr-Murray Mfg. Co., Fort Wayne, Ind., has been awarded the contract for building machinery for the equipment of the gas plant of the Cincinnati Electric Co., Cincinnati. The value of the contract is $30,000. The Kerr-Murray Mfg. Co. has also a number of orders on their books sufficient to keep the plant running at full blast.

An order for 25,000 hexagon nuts for use in the battleship Kansas has just been filled by the Delaware Marine Supply Mfg. Co., of Wilmington, Del. The company is also engaged with large orders for the South Side Elevated of Chicago, the United States quartermasters' department and the William Cramp Shipbuilding Co.

Rogers, Brown & Co., who recently moved their Cleveland offices from the Perry-Payne building to a handsome suite, 1312-1318 Rockefeller building, the new skyscraper recently completed, announce that they will have on file periodicals devoted to the foundry and iron trade, to which all visitors will have access. Sterling W. Hubbard and Harwood Wilson are the resident managers.

The Ingersoll-Rand Co. took possession of its new offices on the fourteenth floor of the Bowling Green building, 11 Broadway, New York, on Aug. 1. At that time the offices of the Ingersoll-Sergeant Drill Co. at 26 Cortlandt street and the Rand Drill Co. at 128 Broadway were given up and the united forces moved to the new offices.

The S. Obermayer Co., manufacturer of foundry facings and supplies, of Cincinnati, Chicago and Pittsburg, announces that it has opened an office at 120 Liberty street, New York. Edgar G. Seaman, who has represented the company at Pittsburg for many years, has charge of the New York office.

The Springfield Boiler Co., Springfield, Ill., has let the contract for considerable new machinery. Their new boiler shop will be 328 ft. long, main span 50 ft. in width with bays on each side having a depth of 44 ft., making the total breadth of the building 138 ft. The structure will be entirely of steel, including two hydraulic pumps, two traveling cranes, hydraulic flanging press, rolls, punches, etc. All machines, including hydraulic pump, air compressor and all tools will be driven by direct connected motors of the induction type.

Contracts have been let to the Long Arm System Co., of Cleveland, for installing its electrically operated bulkhead doors and hatch gears on the battleships "Montana" and "South Carolina." The two vessels are now in course of construction by the Newport News Shipbuilding and Dry Dock Co. The navy department specifications for these warships provided that "each (power) door must be capable of permitting operation on the spot by power or by hand from either side, and all such doors are to be capable of being closed by power simultaneously from an emergency station."

TRADE PUBLICATIONS.

Warren Webster & Co., Camden, N. J., have issued a pamphlet describing the heating systems they have installed in the various plants of the Singer Mfg. Co., maker of the Singer sewing machine.

The Southern Hardware Jobbers' Association has issued a booklet which under the title of "A Dozen Reasons Why," describes the aims and work of the association.

The Kewanee Valve & Metal Works, Kewanee, Ill., has issued a catalogue describing the quick opening gate and universal check valves made by it. The gate valves are made in sizes from ¼ in. to 6 in., and the check valves from ¼ in. to 2 in.

The Fort Wayne Iron & Steel Co., Fort Wayne, Ind., is distributing a neat booklet showing the sizes of bar iron manufactured by it. This book is distributed gratis to customers of the company and to others to whom the information may be of value.

The Ingersoll-Sergeant Drill Co., New York city, is calling attention to the Haeseller "axial valve" air hammers manufactured by it. The hammers are for chipping, caulking, flue-beading, etc., and are made in five sizes. The bulletin describing these shows a number of interesting applications of the hammer and gives directions for their use.

The Ball Engine Co., Erie, Pa., has issued a catalogue describing the new design of engine made by it. Nine different styles are shown, both simple and compound, of the belted and direct connected type. New designs of the Corliss type, both horizontal and vertical, are shown also.

The Cincinnati Shaper Co., Cincinnati, O., has issued catalogue D, describing a number of shapers manufactured by it. These include crank shapers for both light work and heavy duty, and triple geared rack shapers. A shaper specially equipped for mould and die work is shown, as are also a number of traverse shapers of various types.

A. L. Ide & Sons, 11 Broadway, New York, are distributing a booklet on "Ideals." This booklet is devoted to a description of the Ideal engine, a high speed steam engine manufactured by them. The booklet is well illustrated with halftones of the different parts of the engine.

The Bullard Machine Tool Co., Bridgeport, Conn., is sending out a pamphlet entitled "One Day's Work," being the record of work done by the Bullard 42-in. standard boring and turning mill. One hundred and twenty-two cast iron piston rings were cut in ten hours. Diagrams show the disposition of the tools and the method of operation.

The Southwark Foundry & Machine Co., Philadelphia, Pa., is distributing a handsome booklet illustrating the blowing engines which it manufactures. The book comprises 47 pages and is splendidly illustrated with halftones and line cuts, and contains a large amount of descriptive matter. The action of the engine is illustrated by means of indicator cards taken from machines in practice. The action of the Southwark air valves is also described and illustrated. A number of different types of engines are shown, including vertical and steeple type engines, both simple and compound, and horizontal simple and compound engines.

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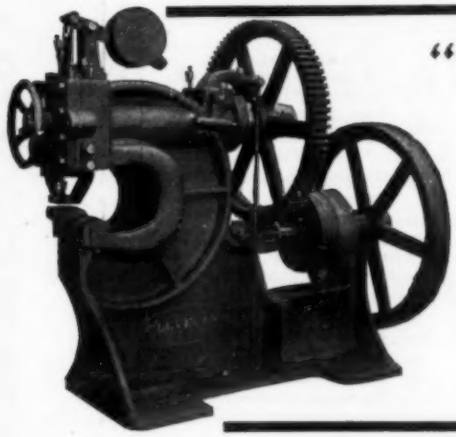

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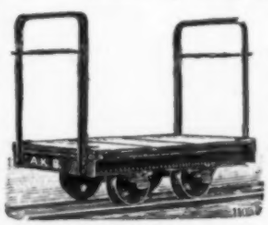

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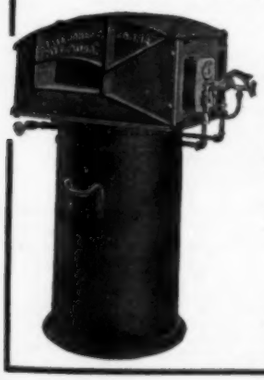

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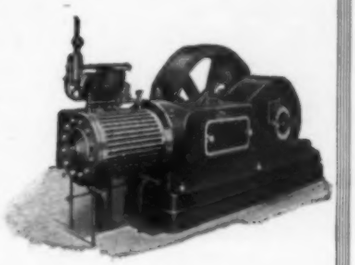

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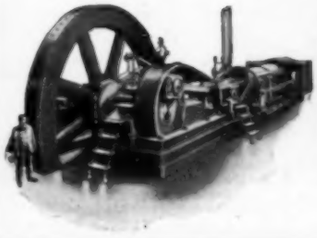

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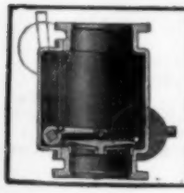

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The Brown Hoisting Machy. Co., Cleveland, Ohio.
H. W. Caldwell & Son Co., Chicago, Ill.
Curtis & Co. Mfg. Co., St. Louis, Mo.
Dobbie Fdy. & Mach. Co., Niagara Falls, N. Y.
Interstate Engineering Co., Cleveland, O.
Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York City.
Link-Belt Machinery Co., Chicago, Ill.
Macbeth Iron Co., Cleveland, O.
New Jersey Fdy. & Mach. Co., New York City.
Niles-Bement-Pond Co., New York.
Northern Engineering Works, Detroit, Mich.
Russel Wheel & Fdy. Co., Detroit, Mich.
J. G. Speidel, Reading, Pa.
The Wellman-Seaver-Morgan Co., Cleveland, Ohio.
Yale & Towne Mfg. Co., New York City.

Hoists (Pneumatic)—
Curtis & Co. Mfg. Co., St. Louis, Mo.
General Pneumatic Tool Co., Montour Falls, N. Y.
Northern Engineering Works, Detroit, Mich.
Rand Drill Co., New York City.

Hot Blast Stoves (Equipment For)—
Union Foundry & Machine Co., Pittsburg, Pa.

Ingot Molds—
Reed F. Blair & Co., Pittsburg, Pa.
The Wm. Tod Co., Youngstown, O.
Wheeling Mold & Fdy. Co., Wheeling, W. Va.

Iron Ores—
Geo. G. Blackwell Sons & Co., Liverpool, Eng.
Reed F. Blair & Co., Pittsburg, Pa.
Corrigan, McKinney & Co., Cleveland, O.
M. A. Hanna & Co., Cleveland, O.
Ernest Law & Co., Philadelphia, Pa.
Oglebay, Norton & Co., Cleveland, O.
Pickands, Brown & Co., Chicago, Ill.
Pickands, Mather & Co., Cleveland, O.
The Tod-Stambaugh Co., Cleveland, O.

Keyseaters—
Baker Bros., Toledo, O.
Niles-Bement-Pond Co., New York.

Ladles—
Girard Boiler & Mfg. Co., Girard, O.
Hill & Griffith Co., Cincinnati, O.
The Meehan Boiler & Construction Co., Lowellville, O.
The S. Obermayer Co., Cincinnati and Chicago
Northern Engineering Works, Detroit, Mich.
J. W. Paxson Co., Philadelphia, Pa.
Riter-Conley Mfg. Co., Pittsburg, Pa.
The J. D. Smith Fdy. Supply Co., Cleveland.

Lathes—
Baird Machinery Co., Pittsburg, Pa.
Bardons & Oliver, Cleveland, O.
Bickford Drill & Tool Co., Cincinnati, O.
Bradford Machine Tool Co., Cincinnati, O.
Bullard Machine Tool Co., Bridgeport, Conn.
The W. P. Davis Mach. Co., Rochester, N. Y.
Jones & Lamson Machine Co., Springfield, Vt.
R. E. Kidder, Worcester, Mass.
The R. K. Le Blond Machine Tool Co., Cincinnati, O.
Lodge & Shipley Mach. Tool Co., Cincinnati.
J. J. McCabe, New York City.
Niles-Bement-Pond Co., New York.
Pratt & Whitney Co., Hartford, Conn.
F. E. Reed Co., Worcester, Mass.
Schumacher & Boye, Cincinnati, O.
Chas. G. Smith Co., Pittsburg, Pa.
Vandyck Churchill Co., New York City.
Whitcomb-Blaisdell Machine Tool Co., Worcester, Mass.
The Warner & Swasey Co., Cleveland, O.

Lathe Accessories—
Armstrong Bros. Tool Co., Chicago, Ill.
New Britain Machine Co., New Britain, Conn.
Niles-Bement-Pond Co., New York.
The Whitman & Barnes Mfg. Co., Chicago, Ill.

Lifting Magnets—
The Electric Controller & Supply Co., Cleveland, O.

Limestone—
Reed F. Blair & Co., Pittsburg, Pa.

Lubricants—
The Ironsides Co., Columbus, O.
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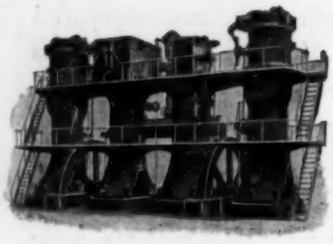

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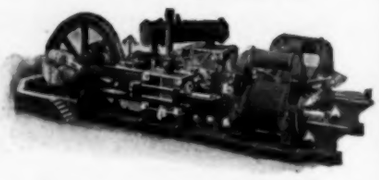

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